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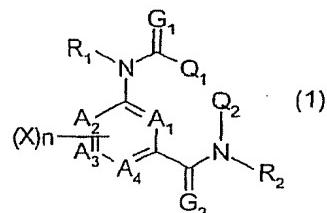
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(54) **AMIDE DERIVATIVES, PROCESS FOR PRODUCTION OF THE SAME, AND METHOD FOR APPLICATION THEREOF AS INSECTICIDE**

(57) An object of the present invention is to provide a compound represented by Formula (1):



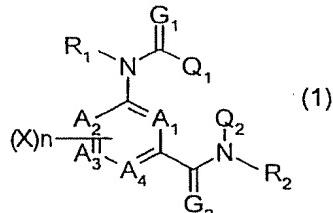
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wherein A₁, A₂, A₃ and A₄ each represent a carbon atom, a nitrogen atom or an oxidized nitrogen atom; R₁ and R₂ each represent a hydrogen atom, an optionally substituted alkyl group or an optionally substituted C1-C4 alkylcarbonyl group; G₁ and G₂ each represent an oxygen atom or a sulfur atom; X, which may be identical or different each other, represents a hydrogen atom, a halogen atom, a C1-C3 alkyl group or a trifluoromethyl group; n is an integer of 0 to 4; and

Q₁ represents an optionally substituted phenyl group, an optionally substituted naphthyl group or an optionally substituted heterocyclic group; Q₂ represents a phenyl group or heterocyclic group having one or more substituents, at least one of the substituent being any of a C1-C4 haloalkoxy group, a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group and a C1-C6 perfluoroalkylsulfonyl group, an insecticide comprising the compound as the active ingredient, and a process for preparation thereof.

Description**TECNICAL FIELD**

5 [0001] The present invention relates to a compound represented by Formula (1):



wherein A_1 , A_2 , A_3 and A_4 each represent a carbon atom, a nitrogen atom or an oxidized nitrogen atom; R_1 and R_2 each represent a hydrogen atom, an optionally substituted alkyl group or an optionally substituted C1-C4 alkylcarbonyl group;

20 G_1 and G_2 each represent an oxygen atom or a sulfur atom;

X , which may be identical or different, represents a hydrogen atom, a halogen atom, a C1-C3 alkyl group or a trifluoromethyl group;

n is an integer of 0 to 4; and

25 Q_1 and Q_2 each represent an optionally substituted phenyl group, an optionally substituted naphthyl group or an optionally substituted heterocyclic group,

an insecticide comprising the compound as the active ingredient, and a process for preparation thereof and use thereof.

BACKGROUND ART

30 [0002] International Publication WO 2000/55120 and US Patent No. 6, 548, 514 describe a compound similar to the compound of the present invention for the use as medicament, but they do not describe on the insecticidal activity of the compound. The compound clearly does not fall within the scope of claims of the present invention.

[0003] International Publication WO 2000/7980 describes a compound similar to the compound of the present invention for the use as medicament, but it does not describe on the insecticidal activity of the compound. The compound clearly does not fall within the scope of claims of the present invention.

[0004] US Patent Laid-Open No. 2002-032238 describes a compound similar to the compound of the present invention for the use as medicament, but it does not describe on the insecticidal activity of the compound. The compound clearly does not fall within the scope of claims of the present invention.

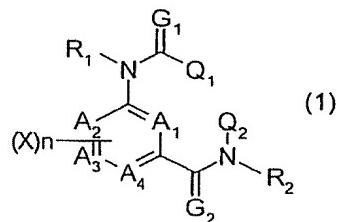
DISCLOSURE OF THE INVENTION

[0005] The object of the present invention is to provide a pesticide having a high insecticidal efficacy. Another object of the present invention is to provide a compound represented by Formula (1), a process for preparation of the compound, an insecticide comprising the compound as an active ingredient, and a process for controlling pests by using a combination of the compound with another pesticide and/or a fungicide.

[0006] The inventors have conducted intensive studies to solve the above problems and discovered that the compound of the invention is a novel compound unknown in the documents and has remarkably excellent insecticidal effects, thus finding a novel application of the compound as a pesticide. Further, they also discovered that a compound unknown in the documents is a useful intermediate for the preparation of the compound of the present invention. As a result, they have completed the present invention.

[0007] The subject of the invention is as follows.

[1] A compound represented by Formula (1):



10 wherein A₁, A₂, A₃ and A₄ each represent a carbon atom, a nitrogen atom or an oxidized nitrogen atom; R₁ and R₂ each represent a hydrogen atom, an optionally substituted alkyl group or an optionally substituted C1-C4 alkylo carbonyl group;

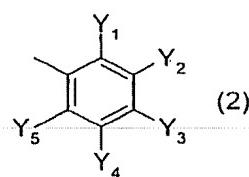
15 G₁ and G₂ each represent an oxygen atom or a sulfur atom; Xs, which may be identical or different each other, represent a hydrogen atom, a halogen atom, a C1-C3 alkyl group or a trifluoromethyl group; n is an integer of 0 to 4; and

20 Q₁ represents an optionally substituted phenyl group, an optionally substituted naphthyl group or an optionally substituted heterocyclic group; Q₂ represents a phenyl group or heterocyclic group having one or more substituents, at least one of the substituent being any of a C1-C4 haloalkoxy group, a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group and a C1-C6 perfluoroalkylsulfonyl group.

[2] The compound as described in [1] represented by Formula (1), wherein R₁ and R₂ are each a hydrogen atom or a C1-C4 alkyl group;

25 Xs, which may be identical or different each other, are a hydrogen atom, a halogen atom or a trifluoromethyl group; Q₁ is a phenyl group, or a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group, and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazinyl group, a pyrazinyl group, a furyl group, a thienyl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group), or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group, and a phenyl group;

35 Q₂ is represented by Formula (2):

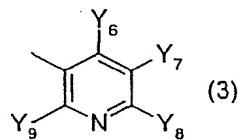


55 (wherein Y₁ and Y₅, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₃ represents

a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₂ and Y₄ each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group); or by Formula (3):

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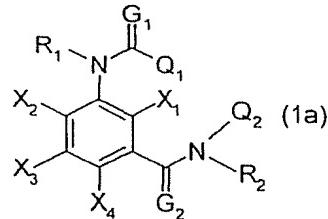
(wherein Y₆ and Y₉, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₈ represents a C1-C4 haloalkoxy group, a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₇ represents a hydrogen atom, a halogen atom or a C1-C4 alkyl group).

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[3] The compound as described in [2], represented by Formula (1a), which is Formula (1) with A₁, A₂, A₃ and A₄ being all carbon atoms:

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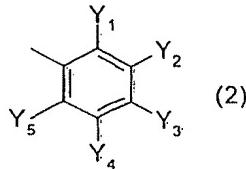
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wherein R₁, R₂, G₁, G₂ and Q₁ have the same meanings as those described in [2], and Q₂ is represented either by Formula (2):

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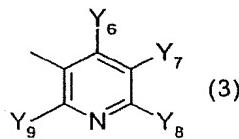


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(wherein Y₁ and Y₅, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₃ represents a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₂ and Y₄ each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group); or by Formula (3):

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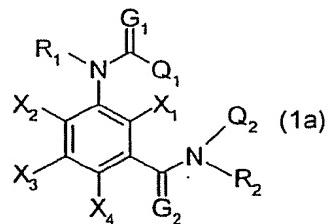


(wherein Y_6 and Y_9 , which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y_8 represents a C1-C4 haloalkoxy group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y_7 represents a hydrogen atom, a halogen atom or a C1-C4 alkyl group),
 5 wherein in Formula (1a), X_1 and X_2 each represent a hydrogen atom or a fluorine atom; and
 X_3 and X_4 represent a hydrogen atom.

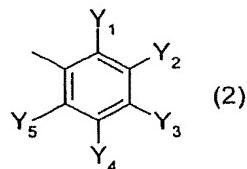
[4] The compound as described in [3], represented by Formula (1a), wherein

Q_1 is a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a pyridyl group; or a substituted pyridyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group.

[5] The compound as described in [1] or [2], represented by Formula (1a), which is Formula (1) with A_1 , A_2 , A_3 and A_4 being all carbon atoms:

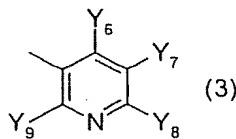


wherein Q_2 is represented either by Formula (2):



(wherein Y_1 and Y_5 , which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y_3 represents a C2-C6 perfluoroalkyl group; and Y_2 and Y_4 each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group); or by Formula (3):

5



(wherein Y₆ and Y₉, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₈ represents a C2-C6 perfluoroalkyl group; and Y₇ represents a hydrogen atom, a halogen atom or a C1-C4 alkyl group);

X₁ and X₂ each represent a hydrogen atom or a fluorine atom;

X₃ and X₄ represent a hydrogen atom;

one of R₁ and R₂ is a hydrogen atom, the other is a C1-C4 alkyl group, or both of them are a C1-C4 alkyl group; G₁ and G₂ each represent an oxygen atom or a sulfur atom; and

Q₁ represents a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6

halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazinyl group, a pyrazinyl group, a furyl group, a thiényl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group); or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different,

selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group.

[6] The compound as described in [5], represented by Formula (1a), wherein

Q₁ is a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4

haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a pyridyl group; or a substituted pyridyl group having one or more substituents, which

may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group.

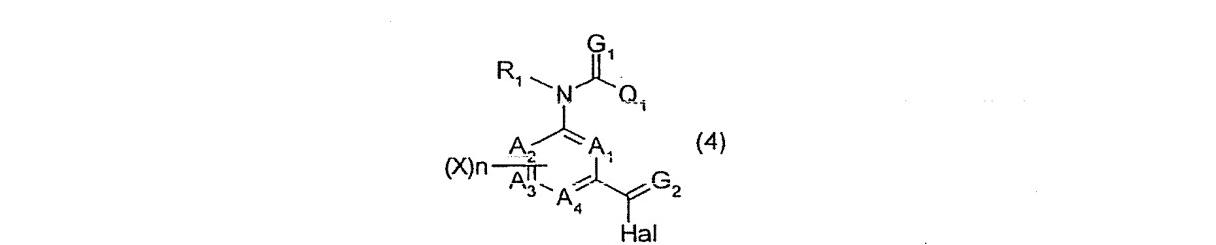
[7] The compound as described in [1] or [2], wherein A₁ is a nitrogen atom or an oxidized nitrogen atom; A₂, A₃ and A₄ are a carbon atom; R₁ and R₂ are each a hydrogen or a C1-C4 alkyl group; X is a hydrogen atom and a fluorine atom; n is 0 or 1; and G₁ and G₂ are an oxygen atom.

[8] The compound as described in [7], represented by Formula (1), wherein

Q₁ is a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocyclo-

cloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a pyridyl group; or a substituted pyridyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group.

[9] A compound represented by Formula (4):



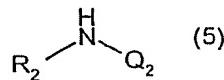
25 wherein A₁, A₂, A₃ and A₄ each represent a carbon atom, a nitrogen atom or an oxidized nitrogen atom; R₁ represents a hydrogen atom, a C1-C4 alkyl group or a C1-C4 alkylcarbonyl group; G₁ and G₂ each represent an oxygen atom or a sulfur atom; X, which may be identical or different each other, represents a hydrogen atom, a halogen atom, an optionally substituted C1-C3 alkyl group or a trifluoromethyl group;

30 n represents an integer of 0 to 4;

35 Q₁ represents a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazyl group, a pyrazyl group, a furyl group, a thienyl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group); or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group or a phenyl group; and

50 Hal represents a chlorine atom or a bromine atom.

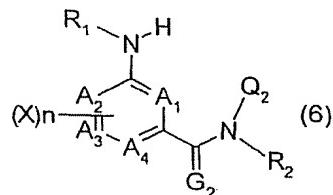
[10] A process for preparation of the compound represented by Formula (1) as described in [1], wherein the compound represented by Formula (4) as described in [9] is reacted with a compound represented by Formula (5):



(wherein R₂ represents a hydrogen atom, an optionally substituted alkyl group or an optionally substituted C1-C4 alkylcarbonyl group; and

Q₂ represents an optionally substituted phenyl group, an optionally substituted naphthyl group or an optionally substituted heterocyclic group).

5 [11] A compound represented by Formula (6):

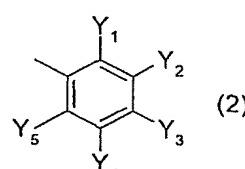


15 wherein A₁, A₂, A₃ and A₄ each represented by a carbon atom, a nitrogen atom or an oxidized nitrogen atom; R₁ and R₂ each represent a hydrogen atom, a C1-C4 alkyl group or a C1-C4 alkylcarbonyl group; G₂ represents an oxygen atom or a sulfur atom;

20 X, which may be identical or different, represents a hydrogen atom, a halogen atom, an optionally substituted C1-C3 alkyl group or a trifluoromethyl group;

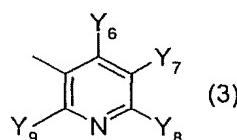
n represents an integer of 0 to 4;

Q₂ is represented either by Formula (2):



30

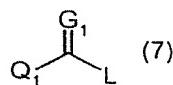
35 (wherein Y₁ and Y₅, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₃ represents a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₂ and Y₄ each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group); or by Formula (3):



45

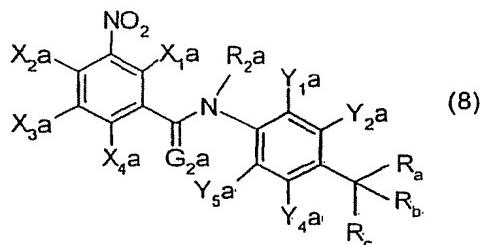
50 (wherein Y₆ and Y₉, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₈ represents a C1-C4 haloalkoxy group, a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₇ represents a hydrogen atom, a halogen atom or a C1-C4 alkyl group).

55 [12] A process for preparation of the compound represented by Formula (1) as described in [1], wherein the compound represented by Formula (6) as described in [11] is reacted with a compound represented by Formula (7):



(wherein G_1 represents an oxygen atom or a sulfur atom; Q_1 represents a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazyl group, a pyrazyl group, a furyl group, a thienyl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group); or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group or a phenyl group; and L represents a halogen atom or a hydroxyl group).

[13] A compound represented by Formula (8):



40 wherein X_{1a} , X_{2a} , X_{3a} and X_{4a} each represent a hydrogen atom, a C1-C3 alkyl group, a trifluoromethyl group, a hydroxyl group, an amino group or a halogen atom;

R_a and R_b each represent a fluorine atom or a C1-C4 perfluoroalkyl group;

45 R_c represents a hydroxyl group, a group $-O-R_d$ (wherein R_d represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group), a chlorine atom, a bromine atom or an iodine atom;

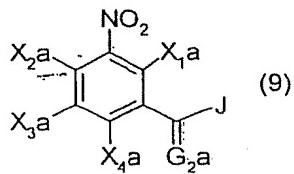
50 R_{2a} represents a hydrogen atom, a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group;

55 Y_{1a} and Y_{5a} each represent a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C3 alkylsulfinyl group or a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a cyano group, a hydroxyl group or a halogen atom;

Y_{2a} and Y_{4a} each represent a hydrogen atom, a C1-C4 alkyl group or a halogen atom; and

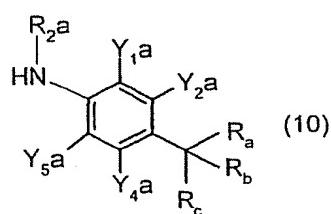
G_{2a} represents an oxygen atom or a sulfur atom.

[14] A process for preparation of the compound represented by Formula (8) as described in [13], wherein a compound represented by Formula (9):



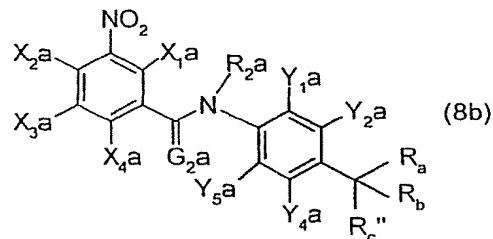
10 (wherein J represents a halogen atom or a hydroxyl group; and X₁a, X₂a, X₃a, X₄a and G₂a have the same meanings as those described in [13]),

is reacted with a compound represented by Formula (10) :



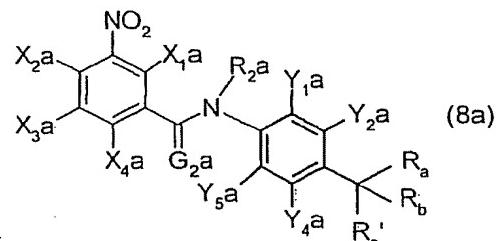
25 (wherein R_a, R_b, R_c, Y₁a, Y₂a, Y₄a, Y₅a and R₂a have the same meanings as those described in [13]).

[15] A process for preparation of a compound represented by Formula (8b):



40 (wherein X₁a, X₂a, X₃a, X₄a, G₂a, R₂a, Y₁a, Y₂a, Y₄a, Y₅a, R_a and R_b have the same meanings as those described in [13] ; and R_c" represents a chlorine atom, a bromine atom or an iodide atom);

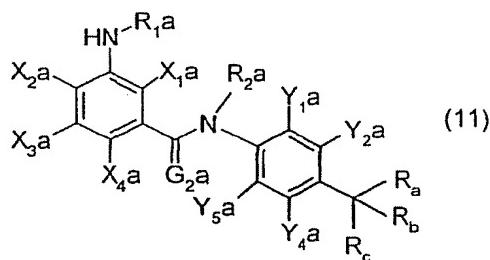
wherein a compound represented by Formula (8a):



55 (wherein X₁a, X₂a, X₃a, X₄a, G₂a, R₂a, Y₁a, Y₂a, Y₄a, Y₅a, R_a and R_b have the same meanings as those described in [13] ; and R_c' represents a hydroxyl group or a group -O-Rd (wherein Rd represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group)),

is reacted with a suitable halogenating agent.

[16] A compound represented by Formula (11) :



15 wherein X_{1a} , X_{2a} , X_{3a} and X_{4a} each represent a hydrogen atom, a C1-C3 alkyl group, a trifluoromethyl group, a hydroxyl group, an amino group or a halogen atom;

R_a and R_b each represent a fluorine atom or a C1-C4 perfluoroalkyl group;

20 R_c represents a hydroxyl group, a group -O- R_d (wherein R_d represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group), a chlorine atom, a bromine atom or an iodine atom;

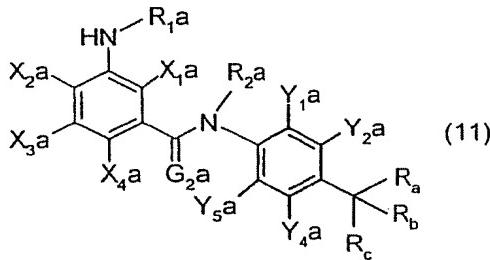
25 R_{1a} and R_{2a} each represent a hydrogen atom, a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group;

30 Y_{1a} and Y_{5a} each represent a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a cyano group, a hydroxyl group or a halogen atom;

Y_{2a} and Y_{4a} each represent a hydrogen atom, a C1-C4 alkyl group or a halogen atom; and

G_{2a} represents an oxygen atom or a sulfur atom.

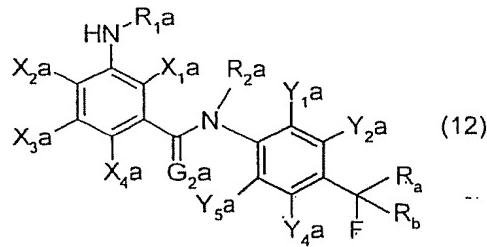
35 [17] A process for preparation of the compound represented by Formula (11) as described in [16]:



(wherein X_{1a} , X_{2a} , X_{3a} , X_{4a} , R_a , R_b , R_c , R_{1a} , R_{2a} , Y_{1a} , Y_{2a} , Y_{4a} , Y_{5a} and G_{2a} have the same meanings as those described in [16]),

50 wherein the compound represented by Formula (8) as described in [13] is reacted in the presence of a suitable reducing agent.

[18] A process for preparation of a compound represented by Formula (12):



wherein X_{1a} , X_{2a} , X_{3a} and X_{4a} each represent a hydrogen atom, a C1-C3 alkyl group, a trifluoromethyl group, a hydroxyl group, an amino group or a halogen atom;

R_a and R_b each represent a fluorine atom or a C1-C4 perfluoroalkyl group;

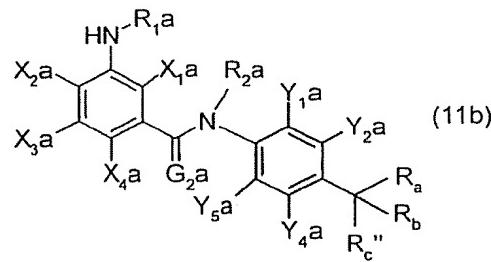
R_{1a} and R_{2a} each represent a hydrogen atom, a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group;

Y_{1a} and Y_{5a} each represent a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a cyano group, a hydroxyl group or a halogen atom;

Y_{2a} and Y_{4a} each represent a hydrogen atom, a C1-C4 alkyl group or a halogen atom; and

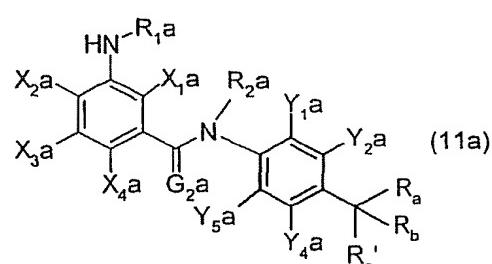
G_{2a} represents an oxygen atom or a sulfur atom.

[19] A process for preparation of a compound represented by Formula (11b):



35
wherein X_{1a} , X_{2a} , X_{3a} , X_{4a} , G_{2a} , R_{1a} , R_{2a} , Y_{1a} , Y_{2a} , Y_{4a} , Y_{5a} , R_a and R_b have the same meanings as those described in [18]; and R_c'' represents a chlorine atom, a bromine atom or an iodine atom);

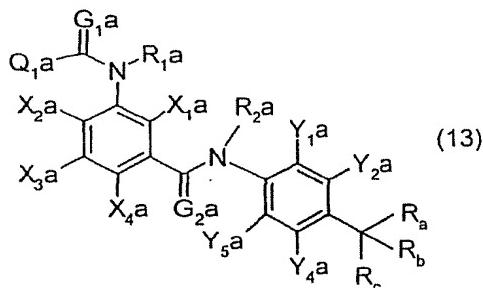
40
wherein a compound represented by Formula (11a):



55
wherein X_{1a} , X_{2a} , X_{3a} , X_{4a} , G_{2a} , R_{1a} , R_{2a} , Y_{1a} , Y_{2a} , Y_{4a} , Y_{5a} , R_a and R_b have the same meanings as those described in [18]; and R_c' represents a hydroxyl group or a group -O-Rd (wherein Rd represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group)),

is reacted with a suitable halogenating agent.

[20] A compound represented by Formula (13):



wherein X_{1a} , X_{2a} , X_{3a} and X_{4a} each represent a hydrogen atom, a C₁-C₃ alkyl group, a trifluoromethyl group, a hydroxyl group, an amino group or a halogen atom;

R_a and R_b each represent a fluorine atom or a C₁-C₄ perfluoroalkyl group;

R_c represents a hydroxyl group, a group -O-R_d (wherein R_d represents a C₁-C₃ alkyl group, a C₁-C₃ haloalkyl group, a C₁-C₃ alkylsulfonyl group, a C₁-C₃ haloalkylsulfonyl group, an arylsulfonyl group, a C₁-C₄ alkylcarbonyl group or a C₁-C₄ haloalkylcarbonyl group), a chlorine atom, a bromine atom or an iodine atom;

R_{1a} and R_{2a} each represent a hydrogen atom, a C₁-C₃ alkyl group, a C₁-C₃ haloalkyl group, a C₁-C₃ alkoxy group, a C₁-C₃ haloalkoxy group, a C₁-C₄ alkylthio group, a C₁-C₄ haloalkylthio group, a C₁-C₄ alkylcarbonyl group or a C₁-C₄ haloalkylcarbonyl group;

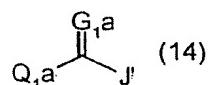
Y_{1a} and Y_{5a} each represent a C₁-C₄ alkyl group, a C₁-C₄ haloalkyl group, a C₁-C₄ alkylthio group, a C₁-C₄ haloalkylthio group, a C₁-C₃ alkylsulfinyl group, a C₁-C₃ haloalkylsulfinyl group, a C₁-C₃ alkylsulfonyl group, a C₁-C₃ haloalkylsulfonyl group, a cyano group, a hydroxyl group or a halogen atom;

Y_{2a} and Y_{4a} each represent a hydrogen atom, a C₁-C₄ alkyl group or a halogen atom;

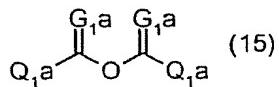
G_{1a} and G_{2a} each represent an oxygen atom or a sulfur atom;

Q_{1a} represents a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C₁-C₄ alkyl group, a C₁-C₄ haloalkyl group, a C₂-C₄ alkenyl group, a C₂-C₄ haloalkenyl group, a C₂-C₄ alkynyl group, a C₂-C₄ haloalkynyl group, a C₃-C₆ cycloalkyl group, a C₃-C₆ halocycloalkyl group, a C₁-C₃ alkoxy group, a C₁-C₃ haloalkoxy group, a C₁-C₃ alkylthio group, a C₁-C₃ haloalkylthio group, a C₁-C₃ alkylsulfinyl group, a C₁-C₃ haloalkylsulfinyl group, a C₁-C₃ alkylsulfonyl group, a C₁-C₃ haloalkylsulfonyl group, a C₁-C₄ alkylamino group, a di-C₁-C₄-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C₁-C₄ alkylcarbonyl group, a C₁-C₄ alkylcarbonyloxy group, a C₁-C₄ alkoxy carbonyl group, an acetyl amino group and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazyl group, a pyrazyl group, a furyl group, a thienyl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group); or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different, selected from a halogen atom, a C₁-C₄ alkyl group, a C₁-C₄ haloalkyl group, a C₂-C₄ alkenyl group, a C₂-C₄ haloalkenyl group, a C₂-C₄ alkynyl group, a C₂-C₄ haloalkynyl group, a C₃-C₆ cycloalkyl group, a C₃-C₆ halocycloalkyl group, a C₁-C₃ alkoxy group, a C₁-C₃ haloalkoxy group, a C₁-C₃ alkylthio group, a C₁-C₃ haloalkylthio group, a C₁-C₃ alkylsulfinyl group, a C₁-C₃ haloalkylsulfinyl group, a C₁-C₃ alkylsulfonyl group, a C₁-C₃ haloalkylsulfonyl group, a C₁-C₄ alkylamino group, a di-C₁-C₄-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C₁-C₄ alkylcarbonyl group, a C₁-C₄ alkylcarbonyloxy group, a C₁-C₄ alkoxy carbonyl group, an acetyl amino group and a phenyl group.

[21] A process for preparation of the compound represented by Formula (13) as described in [20], wherein the compound represented by Formula (11) as described in [16] is reacted with a compound represented by Formula (14):

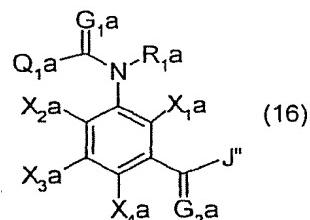


55 (wherein J' represents a halogen atom or a hydroxyl group; and Q_{1a} and G_{1a} have the same meanings as those described in [20]); or a compound represented by Formula (15):



(wherein Q₁a and G₁a have the same meanings as those described in [20]).

[22] A process for preparation of the compound represented by Formula (13) as described in [20], wherein a compound represented by Formula (16):



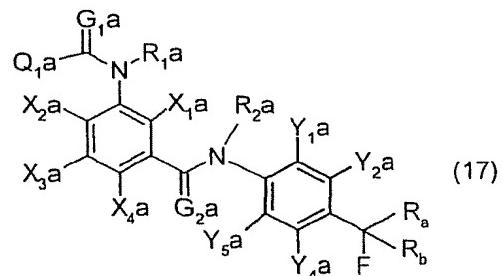
20

(wherein J'' represents a halogen atom or a hydroxyl group; and X₁a, X₂a, X₃a, X₄a, G₁a, G₂a, R₁a and Q₁a have the same meanings as those described in [20]),

25

is reacted with the compound represented by Formula (10) as described in [14].

[23] A process for preparation of a compound represented by Formula (17):

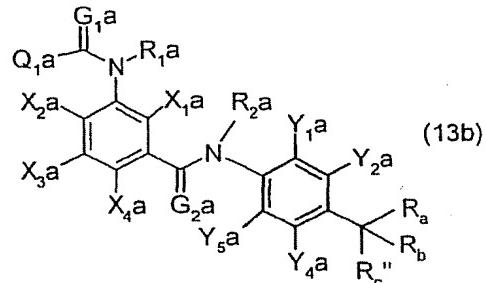


40

(wherein X₁a, X₂a, X₃a, X₄a, R_a, R_b, R₁a, R₂a, Y₁a, Y₂a, Y₄a, Y₅a, G₁a, G₂a and Q₁a have the same meanings as those described in [20]),

wherein the compound represented by Formula (13) as described in [20] is reacted with a suitable fluorinating agent.

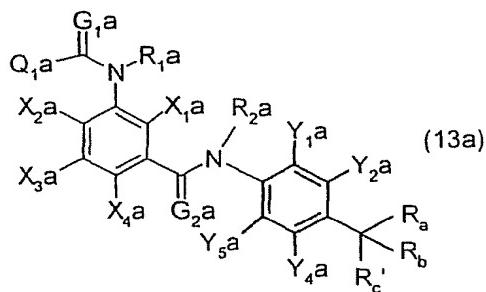
[24] A process for preparation of a compound represented by Formula (13b):



55

(wherein X₁a, X₂a, X₃a, X₄a, R_a, R_b, R₁a, R₂a, Y₁a, Y₂a, Y₄a, Y₅a, G₁a, G₂a and Q₁a have the same meanings as those described in [20]; and R_c'' represents a chlorine atom, a bromine atom or an iodine atom),

wherein a compound represented by Formula (13a):



(wherein X₁a, X₂a, X₃a, X₄a, R_a, R_b, R₁a, R₂a, Y₁a, Y₂a, Y₄a, Y₅a, G₁a, G₂a and Q₁a have the same meanings as those described in [20]; and R_{c'} represents a hydroxyl group or a group -O-R_d (wherein R_d represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group)), is reacted with a suitable halogenating agent.

[25] An insecticide containing the compound as described in [1] to [8] as the active ingredient.

[26] A horticultural or agricultural insecticide containing the compound as described in [1] to [8] as an active ingredient.

[27] A method of using formulation in treating crops for cultivation or the soil to be treated with an effective amount of the compound as described in [1] to [8], in order to protect the crops from harmful organisms.

[28] A composition in which the compound as described in [1] to [8] is mixed with a suitable inert carrier, and optionally with an auxiliary agent.

[29] A mixture in which the compound as described in [1] to [8] is combined with at least one other insecticide and/or fungicide.

[0008] The compound of the present invention exhibits an excellent controlling effect as a pesticide at low doses, and also exhibits an excellent controlling effect when used in combination with a pesticide, an acaricide, a nematocide, a fungicide, a herbicide, a plant growth controlling agent, a biocide or the like.

BEST MODE FOR CARRYING OUT THE INVENTION

[0009] The terms used in the formulae described in the present invention, such as Formula (1) have the meanings as described below, respectively.

[0010] A "halogen atom" represents a fluorine atom, a chlorine atom, a bromine atom or an iodine atom.

[0011] The expression "C_a-C_b (wherein, a and b represent an integer of 1 or more)" means such that, for example, "C1-C3" means having 1 to 3 carbon atoms, "C2-C6" means having 2 to 6 carbon atoms, and "C1-C4" means having 1 to 4 carbon atoms.

[0012] The terms "n-", "i-", "s-" and "t-" mean normal-, iso-, secondary- and tertiary-, respectively.

[0013] The term "optionally substituted alkyl group" means a straight, branched or cyclic alkyl group substituted with substituents, which may be identical or different, such as a hydrogen atom, a halogen atom, a hydroxyl group, a cyano group, a nitro group, a C1-C6 alkoxy group, a C1-C6 haloalkoxy group, a C1-C6 alkylthio group, a C1-C6 haloalkylthio group, a C1-C6 alkylsulfinyl group, a C1-C6 haloalkylsulfinyl group, a C1-C6 alkylsulfonyl group, a C1-C6 haloalkylsulfonyl group, a C1-C6 alkylcarbonyl group, a C1-C6 haloalkylcarbonyl group, a C1-C6 alkoxy carbonyl group, a C1-C6 haloalkoxycarbonyl group, a C1-C6 alkylcarbonyloxy group, a C1-C6 haloalkylcarbonyloxy group, a C1-C6 alkylamino group, a di-C1-C6-alkylamino group, an optionally substituted phenyl group, an optionally substituted phenylcarbonyl group, an optionally substituted phenylamino group and an optionally substituted heterocyclic group.

[0014] The term "optionally substituted C1-C4 alkylcarbonyl group" means a straight, branched or cyclic alkylcarbonyl group having 1 to 4 carbon atoms which is substituted with substituents, which may be identical or different, such as a hydrogen atom, a halogen atom, a hydroxyl group, a cyano group, a nitro group, a C1-C6 alkoxy group, a C1-C6 haloalkoxy group, a C1-C6 alkylthio group, a C1-C6 haloalkylthio group, a C1-C6 alkylsulfinyl group, a C1-C6 haloalkylsulfinyl group, a C1-C6 alkylsulfonyl group, a C1-C6 haloalkylsulfonyl group, a C1-C6 alkylcarbonyl group, a C1-C6 haloalkylcarbonyl group, a C1-C6 alkoxy carbonyl group, a C1-C6 haloalkoxycarbonyl group, a C1-C6 alkylcarbonyloxy group, a C1-C6 haloalkylcarbonyloxy group, an amino group, a C1-C6 alkylamino group, a di-C1-C6-alkylamino group, an optionally substituted phenyl group, an optionally substituted phenylcarbonyl group, an optionally substituted phenylamino group and an optionally substituted heterocyclic group.

[0015] The term "optionally substituted phenyl group" means a phenyl substituted with substituents, which may be

identical or different, such as a hydrogen atom, a halogen atom, a hydroxyl group, a cyano group, a nitro group, a C1-C6 alkoxy group, a C1-C6 haloalkoxy group, a C1-C6 alkylthio group, a C1-C6 haloalkylthio group, a C1-C6 alkylsulfinyl group, a C1-C6 haloalkylsulfinyl group, a C1-C6 alkylsulfonyl group, a C1-C6 haloalkylsulfonyl group, a C1-C6 alkylcarbonyl group, a C1-C6 haloalkylcarbonyl group, a C1-C6 alkoxy carbonyl group, a C1-C6 haloalkoxycarbonyl group, a C1-C6 alkylcarbonyloxy group, a C1-C6 haloalkylcarbonyloxy group, an amino group, a C1-C6 alkylamino group, a di-C1-C6-alkylamino group, an acetyl amino group, an optionally substituted phenyl group, an optionally substituted phenylcarbonyl group, an optionally substituted phenylamino group and an optionally substituted heterocyclic group.

[0016] The term "optionally substituted naphthyl group" means a naphthyl group substituted with substituents, which may be identical or different, such as a hydrogen atom, a halogen atom, a hydroxyl group, a cyano group, a nitro group, a C1-C6 alkoxy group, a C1-C6 haloalkoxy group, a C1-C6 alkylthio group, a C1-C6 haloalkylthio group, a C1-C6 alkylsulfinyl group, a C1-C6 haloalkylsulfinyl group, a C1-C6 alkylsulfonyl group, a C1-C6 haloalkylsulfonyl group, a C1-C6 alkylcarbonyl group, a C1-C6 haloalkylcarbonyl group, a C1-C6 alkoxy carbonyl group, a C1-C6 haloalkoxycarbonyl group, a C1-C6 alkylcarbonyloxy group, a C1-C6 haloalkylcarbonyloxy group, an amino group, a C1-C6 alkylamino group, a di-C1-C6-alkylamino group, an acetyl amino group, an optionally substituted phenyl group, an optionally substituted phenylcarbonyl group, an optionally substituted phenylamino group and an optionally substituted heterocyclic group.

[0017] The term "optionally substituted heterocyclic group" means a heterocyclic group substituted with substituents, which may be identical or different, such as a hydrogen atom, a halogen atom, a hydroxyl group, a cyano group, a nitro group, a C1-C6 alkoxy group, a C1-C6 haloalkoxy group, a C1-C6 alkylthio group, a C1-C6 haloalkylthio group, a C1-C6 alkylsulfinyl group, a C1-C6 haloalkylsulfinyl group, a C1-C6 alkylsulfonyl group, a C1-C6 haloalkylsulfonyl group, a C1-C6 alkylcarbonyl group, a C1-C6 haloalkylcarbonyl group, a C1-C6 alkoxy carbonyl group, a C1-C6 haloalkoxycarbonyl group, a C1-C6 alkylcarbonyloxy group, a C1-C6 haloalkylcarbonyloxy group, an amino group, a C1-C6 alkylamino group, a di-C1-C6-alkylamino group, an acetyl amino group, an optionally substituted phenyl group, an optionally substituted phenylcarbonyl group, an optionally substituted phenylamino group and an optionally substituted heterocyclic group.

[0018] Further, the term "C1-C3 alkyl group" represents a straight or branched alkyl group having 1 to 3 carbon atoms, such as methyl, ethyl, n-propyl, i-propyl, cyclopropyl, etc.; the term "C1-C4 alkyl group" represents a straight or branched alkyl group having 1 to 4 carbon atoms such as, for example, n-butyl, s-butyl, i-butyl, t-butyl, etc. in addition to the C1-C3 alkyl group; and the term "C1-C6 alkyl group" represents a straight or branched alkyl group having 1 to 6 carbon atoms, such as n-pentyl, 2-pentyl, 3-pentyl, neopentyl, n-hexyl, 2-hexyl, 4-methyl-2-pentyl, 3-methyl-n-pentyl, etc. in addition to the C1-C4 alkyl group.

[0019] The term "C1-C3 haloalkyl group" represents a straight or branched alkyl group having 1 to 3 carbon atoms, substituted with one or more halogen atoms which may be identical or different, such as monofluoromethyl, difluoromethyl, trifluoromethyl, monochloromethyl, dichloromethyl, trichloromethyl, monobromomethyl, dibromomethyl, tribromomethyl, 1-fluoroethyl, 2-fluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, 1-chloroethyl, 2-chloroethyl, 2,2-dichloroethyl, 2,2,2-trichloroethyl, 1-bromoethyl, 2-bromoethyl, 2,2-dibromoethyl, 2,2,2-tribromoethyl, 2-iodoethyl, pentafluoroethyl, 3-fluoro-n-propyl, 3-chloro-n-propyl, 3-bromo-n-propyl, 1,3-difluoro-2-propyl, 1,3-dichloro-2-propyl, 1,1,1-trifluoro-2-propyl, 1-chloro-3-fluoro-2-propyl, 1,1,1,3,3-hexafluoro-2-propyl, 1,1,1,3,3-hexafluoro-2-chloro-2-propyl, 2,2,3,3,3-pentafluoro-n-propyl, heptafluoro-i-propyl or heptafluoro-n-propyl. The term "C1-C4 haloalkyl group" represents a straight or branched alkyl group having 1 to 4 carbon atoms and being substituted with one or more halogen atoms which may be identical or different, such as 4-fluoro-n-butyl, nonafluoro-n-butyl and nonafluoro-2-butyl in addition to the "C1-C3 haloalkyl group".

[0020] The term "C2-C4 alkenyl group" represents an alkenyl group having 2 to 4 carbon atoms and a double bond in the carbon chain, such as vinyl, allyl, 2-butene or 3-butene. The Term "C2-C4 haloalkenyl group" represents a straight or branched alkenyl group having 2 to 4 carbon atoms and a double bond in the carbon chain, and being substituted with one or more halogen atoms which may be identical or different, such as 3,3-difluoro-2-propenyl, 3,3-dichloro-2-propenyl, 3,3-dibromo-2-propenyl, 2,3-dibromo-2-propenyl, 4,4-difluoro-3-butene and 3,4,4-tribromo-3-butene.

[0021] The term "C2-C4 alkynyl group" represents a straight or branched alkynyl group having 2 to 4 carbon atoms and a triple bond in the carbon chain, such as propargyl, 1-butyn-3-yl and 1-butyn-3-methyl-3-yl. The term "C2-C4 haloalkynyl group" represents a straight or branched alkenyl group having 2 to 4 carbon atoms and a triple bond in the carbon chain, and being substituted with one or more halogen atoms which may be identical or different.

[0022] The term "C3-C6 cycloalkyl group" represents a cycloalkyl group having a ring structure of 3 to 6 carbon atoms, such as cyclopropyl, cyclobutyl, cyclopentyl, 2-methylcyclopentyl, 3-methylcyclopentyl and cyclohexyl. The term "C3-C6 halocycloalkyl group" represents a cycloalkyl group having a ring structure of 3 to 6 carbon atoms and being substituted with one or more halogen atoms which may be identical or different, such as 2,2,3,3-tetrafluorocyclobutyl, 2-chlorocyclohexyl and 4-chlorocyclohexyl.

[0023] The term "C1-C3 alkoxy group" represents a straight or branched alkoxy group having 1 to 3 carbon atoms, such as methoxy, ethoxy, n-propoxy and isopropoxy. The term "C1-C3 haloalkoxy group" represents a straight or

branched haloalkoxy group having 1 to 3 carbon atoms, substituted with one or more halogen atoms which may be identical or different, such as trifluoromethoxy, 1,1,1,3,3,3-hexafluoro-2-propyloxy, 2,2,2-trifluoroethoxy, 2-chloroethoxy and 3-fluoro-n-propyloxy. The term "C1-C4 haloalkoxy group" represents a straight or branched haloalkoxy group having 1 to 4 carbon atoms and being substituted with one or more halogen atoms which may be identical or different, such as 1,1,1,3,3,4,4,4-octafluoro-2-butyloxy in addition to the "C1-C3 haloalkoxy group".

[0024] The term "C1-C3 alkylthio group" represents a straight or branched alkylthio group having 1 to 3 carbon atoms, such as methylthio, ethylthio, n-propylthio, i-propylthio and cyclopropylthio. The term "C1-C4 alkylthio group" represents a straight or branched alkylthio group having 1 to 4 carbon atoms, such as n-butylthio, i-butylthio, s-butylthio, t-butylthio and cyclopropylmethylthio in addition to the "C1-C3 alkylthio group". The term "C1-C3 haloalkylthio group" represents

a straight or branched alkylthio group having 1 to 3 carbon atoms, substituted with one or more halogen atoms which may be identical or different, such as trifluoromethylthio, pentafluoroethylthio, 2,2,2-trifluoroethylthio, heptafluoro-n-propylthio and heptafluoro-i-propylthio. The term "C1-C4 haloalkylthio group" represents a straight or branched alkylthio group having 1 to 4 carbon atoms and being substituted with one or more halogen atoms which may be identical or different, such as nonafluoro-n-butylthio, nonafluoro-s-butylthio and 4,4,4-trifluoro-n-butylthio in addition to the "C1-C3 haloalkylthio group".

[0025] The term "C1-C3 alkylsulfinyl group" represents a straight or branched alkylsulfinyl group having 1 to 3 carbon atoms, such as methylsulfinyl, ethylsulfinyl, n-propylsulfinyl, i-propylsulfinyl or cyclopropylsulfinyl. The term "C1-C3 haloalkylsulfinyl group" represents a straight or branched alkylsulfinyl group having 1 to 3 carbon atoms, substituted with one or more halogen atoms which may be identical or different, such as trifluoromethylsulfinyl, pentafluoroethylsulfinyl, 2,2,2-trifluoroethylsulfinyl, heptafluoro-n-propylsulfinyl and heptafluoro-i-propylsulfinyl.

[0026] The term "C1-C3 alkylsulfonyl group" represents a straight or branched alkylsulfonyl group having 1 to 3 carbon atoms, such as methylsulfonyl, ethylsulfonyl, n-propylsulfonyl, i-propylsulfonyl and cyclopropylsulfonyl. The "C1-C3 haloalkylsulfonyl group" represents a straight or branched alkylsulfonyl group having 1 to 3 carbon atoms, substituted with one or more halogen atoms which may be identical or different, such as trifluoromethylsulfonyl, pentafluoroethylsulfonyl, 2,2,2-trifluoroethylsulfonyl, heptafluoro-n-propylsulfonyl or heptafluoro-i-propylsulfonyl.

[0027] The term "arylsulfonyl group" represents an arylsulfonyl group having an aromatic ring of 6 to 14 carbon atoms, such as phenylsulfonyl, p-toluenesulfonyl, 1-naphthylsulfonyl, 2-naphthylsulfonyl, anthrylsulfonyl, phenanthrylsulfonyl and acenaphthylene sulfonyl.

[0028] The term "C1-C4 alkylamino group" represents a straight, branched or cyclic alkylamino group having 1 to 4 carbon atoms, such as methylamino, ethylamino, n-propylamino, i-propylamino, n-butylamino and cyclopropylamino. The term "di-C1-C4-alkylamino group" represents an amino group substituted with two straight or branched alkyl group having 1 to 4 carbon atoms which may be identical or different, such as dimethylamino, diethylamino and N-ethyl-N-methylamino.

[0029] The term "C1-C4 alkylcarbonyl group" represents a straight, branched or cyclic alkylcarbonyl group having 1 to 4 carbon atoms, such as formyl, acetyl, propionyl, isopropylcarbonyl and cyclopropylcarbonyl.

[0030] The term "C1-C4 haloalkylcarbonyl group" represents a straight or branched alkylcarbonyl group having 1 to 4 carbon atoms and being substituted with one or more halogen atoms which may be identical or different, such as fluoroacetyl, difluoroacetyl, trifluoroacetyl, chloroacetyl, dichloroacetyl, trichloroacetyl, bromoacetyl, iodoacetyl, 3,3,3-trifluoropropionyl and 2,2,3,3,3-pentafluoropropionyl.

[0031] The term "C1-C4 alkylcarbonyloxy group" represents a straight or branched alkylcarbonyloxy group having 1 to 4 carbon atoms, such as acetoxy and propionyloxy.

[0032] The term "C1-C4 alkoxy carbonyl group" represents a straight or branched alkoxy carbonyl group having 1 to 4 carbon atoms, such as methoxycarbonyl, ethoxycarbonyl or isopropyloxycarbonyl.

[0033] The term "C1-C4 perfluoroalkyl group" represents a straight or branched alkyl group having 1 to 4 carbon atoms and being completely substituted with fluorine atoms, such as trifluoromethyl, pentafluoroethyl, heptafluoro-n-propyl, heptafluoro-i-propyl, nonafluoro-n-butyl, nonafluoro-2-butyl and nonafluoro-i-butyl. The term "C2-C6 perfluoroalkyl group" represents a straight or branched alkyl group having 2 to 6 carbon atoms and being completely substituted with fluorine atoms, such as pentafluoroethyl, heptafluoro-n-propyl, heptafluoro-i-propyl, nonafluoro-n-butyl, nonafluoro-2-butyl, nonafluoro-i-butyl, perfluoro-n-pentyl and perfluoro-n-hexyl.

[0034] The term "C1-C6 perfluoroalkylthio group" represents a straight or branched alkylthio group having 1 to 6 carbon atoms and being completely substituted with fluorine atoms, such as trifluoromethylthio, pentafluoroethylthio, heptafluoro-n-propylthio, heptafluoro-i-propylthio, nonafluoro-n-butylthio, nonafluoro-2-butylthio, nonafluoro-i-butylthio, perfluoro-n-pentylthio and perfluoro-n-hexylthio.

[0035] The term "C1-C6 perfluoroalkylsulfinyl group" represents a straight or branched alkylsulfinyl group having 1 to 6 carbon atoms and being completely substituted with fluorine atoms, such as trifluoromethylsulfinyl, pentafluoroethylsulfinyl, heptafluoro-n-propylsulfinyl, heptafluoro-i-propylsulfinyl, nonafluoro-n-butylsulfinyl, nonafluoro-2-butylsulfinyl, nonafluoro-i-butylsulfinyl, perfluoro-n-pentylsulfinyl and perfluoro-n-hexylsulfinyl.

[0036] The term "C1-C6 perfluoroalkylsulfonyl group" represents a straight or branched alkylsulfonyl group having 1

to 6 carbon atoms and being completely substituted with fluorine atoms, such as trifluoromethylsulfonyl, pentafluoroethylsulfonyl, heptafluoro-n-propylsulfonyl, heptafluoro-i-propylsulfonyl, nonafluoro-n-butylsulfonyl, nonafluoro-2-butytsulfonyl, nonafluoro-i-butylsulfonyl, perfluoro-n-pentylsulfonyl and perfluoro-n-hexylsulfonyl.

[0037] The compound represented by Formula (1) of the invention may comprise one or a plurality of chiral carbon atoms or chiral centers in the structure, and thus two or more optical isomers may exist. The present invention includes all of the individual optical isomers and mixtures comprising them at any proportions. Furthermore, the compound represented by Formula (1) of the invention may exist in the form of two or more stereoisomers originating from carbon-carbon double bonds in the structure, and the invention includes all of the individual stereoisomers and mixtures comprising them at any proportions.

[0038] The substituents or atoms preferred as the substituents for the compounds represented by the above-mentioned formulae such as Formula (1) of the invention will be presented below.

[0039] A_1 , A_2 , A_3 and A_4 are preferably such that A_1 is a carbon atom, a nitrogen atom or an oxidized nitrogen atom and at the same time A_2 , A_3 and A_4 are all carbon atoms, and more preferably such that A_1 , A_2 , A_3 and A_4 are all carbon atoms.

[0040] R_1 is preferably a hydrogen atom or a C1-C4 alkyl group, and more preferably a hydrogen atom, a methyl group or an ethyl group.

[0041] R_2 is preferably a hydrogen atom or a C1-C4 alkyl group, and more preferably a hydrogen atom, a methyl group or an ethyl group.

[0042] G_1 and G_2 are each preferably an oxygen atom or a sulfur atom, and more preferably G_1 and G_2 are both an oxygen atom.

[0043] X is preferably a hydrogen atom or a halogen atom, and more preferably a hydrogen atom or a fluorine atom.

[0044] n is preferably 0, 1 or 2, and more preferably 0 or 1.

[0045] X_1 is preferably a hydrogen atom or a halogen atom, and more preferably a hydrogen atom or a fluorine atom.

[0046] X_2 is preferably a hydrogen atom or a fluorine atom, and more preferably a hydrogen atom.

[0047] X_3 and X_4 are preferably a hydrogen atom.

[0048] Q_1 is preferably a phenyl group; a phenyl group optionally substituted with one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 haloalkylthio group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group and an acetyl amino group; a pyridyl group; or a pyridyl group optionally substituted with one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 haloalkylthio group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group and an acetyl amino group.

[0049] More preferably, Q_1 is a phenyl group; a phenyl group having 1 to 3 substituents, which may be identical or different, selected from a fluorine atom, a chlorine atom, a bromine atom, an iodine atom, a methyl group, a trifluoromethyl group, a methoxy group, a trifluoromethoxy group, a methylthio group, a methylsulfinyl group, a methylsulfonyl group, a trifluoromethylthio group, a trifluoromethylsulfinyl group, a trifluoromethylsulfonyl group, a methylamino group, a dimethylamino group, a cyano group and a nitro group; a pyridyl group; or a pyridyl group having 1 or 2 substituents, which may be identical or different, selected from a fluorine atom, a chlorine atom, a bromine atom, an iodine atom, a methyl group, a trifluoromethyl group, a methoxy group, a trifluoromethoxy group, a methylthio group, a methylsulfinyl group, a methylsulfonyl group, a trifluoromethylthio group, a trifluoromethylsulfinyl group, a trifluoromethylsulfonyl group, a methylamino group, a dimethylamino group, a cyano group and a nitro group.

[0050] Q_2 is preferably a substituted phenyl group represented by Formula (2) or a substituted pyridyl group represented by Formula (3), wherein:

Y_1 and Y_5 are each preferably a chlorine atom, a bromine atom, an iodine atom, a methyl group, an ethyl group, an n-propyl group, an i-propyl group, an n-butyl group, a 2-butyl group, a trifluoromethyl group, a methylthio group, a methylsulfinyl group, a methylsulfonyl group, a trifluoromethylthio group, a trifluoromethylsulfinyl group, a trifluoromethylsulfonyl group and a cyano group;

Y_6 and Y_9 are each preferably a chlorine atom, a bromine atom, an iodine atom, a methyl group, an ethyl group, an n-propyl group, an i-propyl group, an n-butyl group, a 2-butyl group, a trifluoromethyl group, a methylthio group, a methylsulfinyl group, a methylsulfonyl group, a trifluoromethylthio group, a trifluoromethylsulfinyl group, a trifluoromethylsulfonyl group, a trifluor-

omethylsulfonyl group and a cyano group;

Y₂, Y₄ and Y₇ are each preferably a hydrogen atom, a halogen atom or a methyl group, and more preferably a hydrogen atom;

Y₃ is preferably a pentafluoroethyl group, a heptafluoro-n-propyl group, a heptafluoro-i-propyl group, a nonafluoro-n-butyl group, a nonafluoro-2-butyl group, a nonafluoro-i-butyl group, a trifluoromethylthio group, a pentafluoroethylthio group, a heptafluoro-n-propylthio group, a heptafluoro-i-propylthio group, a nonafluoro-n-butylthio group, a nonafluoro-2-butylthio group, a trifluoromethylsulfinyl group, a pentafluoroethylsulfinyl group, a heptafluoro-i-propylsulfinyl group, a nonafluoro-n-butylsulfinyl group, a nonafluoro-2-butylsulfinyl group, a trifluoromethylsulfonyl group, a pentafluoroethylsulfonyl group, a heptafluoro-n-propylsulfonyl group, a nonafluoro-n-butylsulfonyl group or anonafluoro-2-butylsulfonyl group;

Y₈ is preferably a pentafluoroethyl group, a heptafluoro-n-propyl group, a heptafluoro-i-propyl group, a nonafluoro-n-butyl group, a nonafluoro-2-butyl group, a nonafluoro-i-butyl group, a trifluoromethylthio group, a pentafluoroethylthio group, a heptafluoro-n-propylthio group, a heptafluoro-i-propylthio group, a nonafluoro-n-butylthio group, a nonafluoro-2-butylthio group, a trifluoromethylsulfinyl group, a pentafluoroethylsulfinyl group, a heptafluoro-i-propylsulfinyl group, a nonafluoro-n-butylsulfinyl group, a nonafluoro-2-butylsulfinyl group, a trifluoromethylsulfonyl group, a pentafluoroethylsulfonyl group, a heptafluoro-n-propylsulfonyl group, a nonafluoro-n-butylsulfonyl group, a nonafluoro-2-butylsulfonyl group, a heptafluoro-i-propylsulfonyl group, a nonafluoro-n-butylsulfonyl group, a nonafluoro-2-butylsulfonyl group, a heptafluoroethoxy group and a 1,1,3,3-hexafluoro-i-propyloxy group.

[0051] L is preferably a chlorine atom, a bromine atom or a hydroxyi group.

[0052] R_{1a} is preferably a hydrogen atom or a C1-C4 alkyl group, and more preferably a hydrogen atom, a methyl group or an ethyl group.

[0053] R_{2a} is preferably a hydrogen atom or a C1-C4 alkyl group, and more preferably a hydrogen atom, a methyl group or an ethyl group.

[0054] G_{1a} and G_{2a} are each preferably an oxygen atom or a sulfur atom, and more preferably G_{1a} and G_{2a} are both an oxygen atom.

[0055] X_{1a} is preferably a hydrogen atom or a halogen atom, and more preferably a hydrogen atom or a fluorine atom.

[0056] X_{2a} is preferably a hydrogen atom or a fluorine atom, and more preferably a hydrogen atom.

[0057] X_{3a} and X_{4a} are preferably a hydrogen atom.

[0058] Y_{1a} and Y_{5a} are each preferably a chlorine atom, a bromine atom, an iodine atom, a methyl group, an ethyl group, an n-propyl group, an i-propyl group, an n-butyl group, a 2-butyl group, a trifluoromethyl group, a methylthio group, a methylsulfinyl group, a methylsulfonyl group, a trifluoromethylthio group, a trifluoromethylsulfinyl group, a trifluoromethylsulfonyl group or a cyano group.

[0059] Y_{2a} and Y_{4a} are each preferably a hydrogen atom, a halogen atom and a methyl group, and more preferably a hydrogen atom.

[0060] Q_{1a} is preferably a phenyl group; a phenyl group optionally substituted with one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group and an acetyl amino group; a pyridyl group; or a pyridyl group optionally substituted with one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group and an acetyl amino group.

[0061] More preferably, Q_{1a} is a phenyl group; a phenyl group having 1 to 3 substituents, which may be identical or different, selected from a fluorine atom, a chlorine atom, a bromine atom, an iodine atom, a methyl group, a trifluoromethyl group, a methoxy group, a trifluoromethoxy group, a methylthio group, a methylsulfinyl group, a methylsulfonyl group, a trifluoromethylthio group, a trifluoromethylsulfinyl group, a trifluoromethylsulfonyl group, a methylamino group, a dimethylamino group, a cyano group and a nitro group; a pyridyl group; or a pyridyl group having 1 or 2 substituents, which may be identical or different, selected from a fluorine atom, a chlorine atom, a bromine atom, an iodine atom, a methyl group, a trifluoromethyl group, a methoxy group, a trifluoromethoxy group, a methylthio group, a methylsulfinyl group, a methylsulfonyl group, a trifluoromethylthio group, a trifluoromethylsulfinyl group, a trifluoromethylsulfonyl group, a methylamino group, a dimethylamino group, a cyano group and a nitro group.

[0062] R_a and R_b are each preferably a fluorine atom, a trifluoromethyl group, a pentafluoroethyl group or a heptafluoro-n-propyl group, and more preferably a fluorine atom, a trifluoromethyl group or a pentafluoroethyl group.

[0063] R_c is preferably a hydroxyl group, a chlorine atom, a bromine atom, an iodine atom, a methoxy group, an ethoxy group, a methylsulfonyloxy group, a trifluoromethylsulfonyloxy group, a phenylsulfonyloxy group, a p-toluenesulfonyloxy group, an acetoxy group or a trifluoroacetoxy group, and more preferably a hydroxyl group, a chlorine atom, a bromine atom, a methoxy group, a methylsulfonyloxy group, a trifluoromethylsulfonyloxy group, a phenylsulfonyloxy group or a p-toluenesulfonyloxy group, and even more preferably a hydroxyl group, a chlorine atom or a bromine atom.

[0064] R_{c'} is preferably a hydroxyl group.

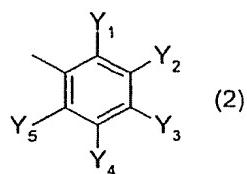
[0065] R_{c''} is preferably a chlorine atom or a bromine atom.

[0066] J, J' and J'' are each preferably a hydroxyl group, a chlorine atom or a bromine atom, and more preferably a chlorine atom.

[0067] Representative processes for preparation of the compound of the invention will be described in the following. Preparation of the compound of the invention is possible by following the procedure, but the preparation route is not limited only to the process for preparation described below.

[0068] With regard to the formulae prepared by the following processes for preparation, X₁, X₂, X₃, X₄, Y₁, Y₂, Y₄, Y₅, G₁, G₂, R₁, R₂ and Q₁ may correspond to X_{1a}, X_{2a}, X_{3a}, X_{4a}, Y_{1a}, Y_{2a}, Y_{4a}, Y_{5a}, G_{1a}, G_{2a}, R_{1a}, R_{2a} and Q_{1a}, respectively, and it is also possible vice versa. Further, Q₂ has the meaning as described in claim 1 or is represented by Formula (2) :

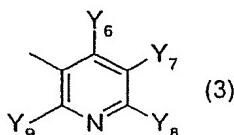
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(wherein Y₁, Y₂, Y₃, Y₄ and Y₅ have the same meanings as described above),
by Formula (3):

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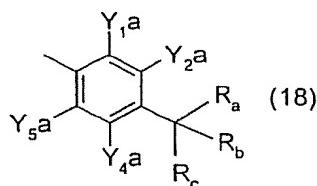


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(wherein Y₆, Y₇, Y₈ and Y₉ have the same meanings as described above),
or by Formula (18):

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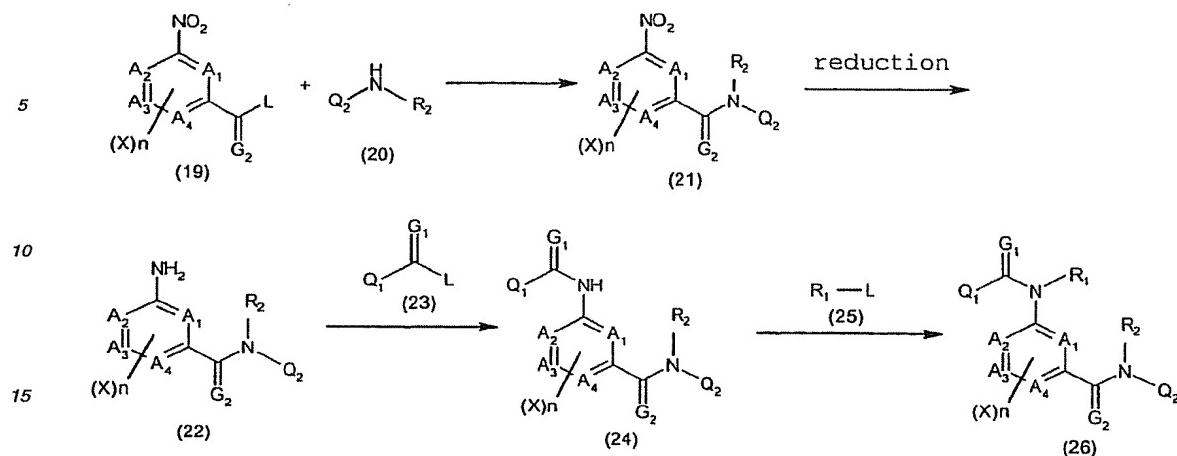


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(wherein Y_{1a}, Y_{2a}, Y_{4a}, Y_{5a}, R_a, R_b and R_c have the same meaning as described above).

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Preparation Process 1



wherein A_1 , A_2 , A_3 , A_4 , G_1 , G_2 , R_1 , R_2 , X , n , Q_1 and Q_2 have the same meaning as described above, and L represents a functionality capable of leaving such as a halogen atom or a hydroxyl group.

1-(i) Formula (19) + Formula (20) → Formula (21)

[0069] An aromatic carboxamide derivative having a nitro group represented by Formula (21) can be prepared by reacting an m-nitro aromatic carboxylic acid derivative having a leaving group represented by Formula (19) with an aromatic amine derivative represented by Formula (20) in a suitable solvent or without a solvent. In this step, an appropriate base can be also used.

[0070] For the solvent, use can be made of any solvent which does not impede the reaction significantly, for example, water; aromatic hydrocarbons such as benzene, toluene and xylene; halogenated hydrocarbons such as dichloromethane, chloroform and tetrachlorocarbon; chained or cyclic ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; ketones such as acetone, methyl isobutyl ketone and cyclohexanone; amides such as dimethyl formamide and dimethyl acetamide; nitriles such as acetonitrile; and inert solvents such as 1,3-dimethyl-2-imidazolidinone, which may be used alone or in combination of two or more.

[0071] Further, for the base, use can be made of organic bases such as triethylamine, tri-n-butylamine, pyridine and 4-dimethyl aminopyridine; alkali metal hydroxides such as sodium hydroxide and potassium hydroxide; carbonates such as sodium hydrogen carbonate and potassium carbonate; phosphates such as dipotassium hydrogen phosphate and trisodium phosphate; alkali metal hydrides such as sodium hydride; and alkali metal alcoholates such as sodium methoxide and sodium ethoxide. These bases may be appropriately used in a quantity of 0.01 to 5-fold molar equivalents with respect to the compound represented by Formula (19).

[0072] The reaction temperature may be suitably selected within the range of -20°C to the reflux temperature of the solvent used, and the reaction time within the range of several minutes to 96 hours.

[0073] Among the compounds represented by Formula (19), an aromatic carboxylic acid halide derivative may be prepared easily from an aromatic carboxylic acid by a conventional process using a halogenating agent. A halogenating agent may be, for example, thionyl chloride, thionyl bromide, phosphorus oxychloride, oxalyl chloride, phosphorus trichloride and the like.

[0074] Meanwhile, it is possible to prepare the compound represented by Formula (21) from an m-nitro aromatic carboxylic acid derivative and the compound represented by Formula (20) without using a halogenating agent. The process is described in, for example, Chem. Ber. p. 788 (1970), in which a condensing agent comprising N,N'-dicyclohexylcarbodiimide is used, suitably with an additive such as 1-hydroxybenzotriazole. Other condensing agents that can be used in this case may include 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide, 1,1'-carbonylbis-1H-imidazole and the like.

[0075] Furthermore, for other processes for preparation of the compounds represented by Formula (21), there can be used a mixed acid anhydride process using chloroformic acid esters or a process described in J. Am. Chem. Soc., p.5012 (1967) in order to prepare the compound represented by Formula (21). The chloroformic acid esters used in this case may include isobutyl chloroformate, isopropyl chloroformate and the like. In addition to chloroformic acid esters, diethylacetyl chloride, trimethylacetyl chloride and the like can also be used.

[0076] Both the process using a condensing agent and the mixed acid anhydride process are not limited by the solvent,

the reaction temperature and the reaction time as described in the references above. An inert solvent may be used which does not impede the reaction significantly, and the reaction temperature and the reaction time may also be selected appropriately in accordance with the proceeding of the reaction.

5 1-(ii) Formula (21) → Formula (22)

[0077] An aromatic carboxamide derivative having an amino group represented by Formula (22) can be derived from the aromatic carboxamide derivative having a nitro group represented by Formula (21) by means of reduction. Such reduction is illustrated by a process using hydrogenation and a process using a metal compound (for example, tin(II) chloride (anhydride), iron powder, zinc powder and the like).

10 [0078] The reaction of the former process can be carried out in a suitable solvent in the presence of catalyst at atmospheric pressure or a higher pressure under a hydrogen atmosphere. Examples of the catalyst may include palladium catalysts such as palladium-carbon, nickel catalysts such as Raney nickel, cobalt catalysts, ruthenium catalysts, rhodium catalysts, platinum catalysts and the like, and examples of the solvent may include water; alcohols such as methanol and ethanol; aromatic hydrocarbons such as benzene, toluene; chained or cyclic ethers such as ether, dioxane, tetrahydrofuran, etc.; and esters such as ethyl acetate. The compound of Formula (22) can be efficiently prepared by appropriately selecting the pressure within a range of 0.1 to 10 Mpa, the reaction temperature within a range of -20°C to the reflux temperature of the solvent used, and the reaction time within a range of several minutes to 96 hours.

15 [0079] For the latter process, there can be used a method using tin (II) chloride (anhydride) as a metal compound under the conditions described in "Organic Syntheses" Coll. Vol. III, P.453.

20 1-(iii) Formula (22) + Formula (23) → Formula (24)

25 [0080] A compound of the invention represented by Formula (24) can be prepared by reacting the aromatic carboxamide derivative having an amino group represented by Formula (22) with the compound represented by Formula (23) in a suitable solvent. In this step, a suitable base can also be used.

30 [0081] For the solvent, use can be made of any solvent which does not impede the reaction significantly, for example, water; aromatic hydrocarbons such as benzene, toluene and xylene; halogenated hydrocarbons such as dichloromethane, chloroform and tetrachlorocarbon; chained or cyclic ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; ketones such as acetone, methyl isobutyl ketone and cyclohexanone; amides such as dimethyl formamide and dimethyl acetamide; nitriles such as acetonitrile; and inert solvents such as 1,3-dimethyl-2-imidazolidinone, which may be used alone or in combination of two or more.

35 [0082] Further, for the base, use can be made of organic bases such as triethylamine, tri-n-butylamine, pyridine and 4-dimethyl aminopyridine; alkali metal hydroxides such as sodium hydroxide and potassium hydroxide; carbonates such as sodium hydrogen carbonate and potassium carbonate; phosphates such as dipotassium hydrogen phosphate and trisodium phosphate; alkali metal hydrides such as sodium hydride; and alkali metal alcoholates such as sodium methoxide and sodium ethoxide. Such base may be appropriately used in a quantity of 0.01 to 5-fold molar equivalents with respect to the compound represented by Formula (22). The reaction temperature may be suitably selected within the range of -20°C to the reflux temperature of the solvent used, and the reaction time within the range of several minutes to 96 hours. It is also possible to prepare by the method using a condensing agent as described in 1-(i) or the mixed acid anhydride method.

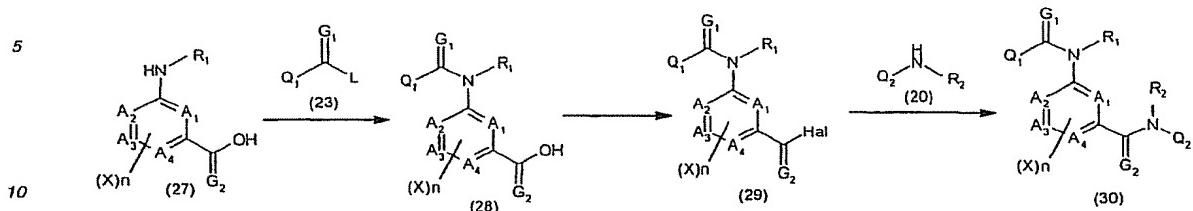
40 1-(iv) Formula (24) + Formula (25) → Formula (26)

45 [0083] A compound represented by Formula (26) of the invention can be prepared by reacting a compound represented by Formula (24) with an alkyl compound having a leaving group represented by Formula (25) in a solvent or without a solvent. The compound represented by Formula (25) may include an alkyl halide such as methyl iodide, ethyl iodide or n-propyl bromide. Further, in this step, it is possible to use a suitable base or a solvent, and for such base or solvent, those exemplified in 1-(i) may be used. The reaction temperature, the reaction time and the like may be selected according to the examples as given in 1-(i).

50 [0084] Alternatively, it is also possible to prepare the compound represented by Formula (26) by reacting the compound represented by Formula (24) with an alkylating agent such as dimethyl sulfate, diethyl sulfate and the like, instead of the compound represented by Formula (25).

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Preparation Process 2



wherein A₁, A₂, A₃, A₄, G₁, G₂, R₁; R₂, X, n, Q₁, Q₂, L and Hal have the same meaning as those described in the above.

15 2-(i) Formula (27) + Formula (23) \rightarrow Formula (28)

[0085] Carboxylic acids having an acylamino group represented by Formula (28) can be prepared by reacting carboxylic acids having an amino group represented by Formula (27) as starting material with the compound represented by Formula (23) according to the conditions described in 1-(i).

20

[0086] A compound represented by Formula (29) can be prepared by a known conventional method in which the compound represented by Formula (28) is reacted with thionyl chloride, oxalyl chloride, phosgene, phosphorus oxychloride, phosphorus pentachloride, phosphorus trichloride, thionyl bromide, phosphorus tribromide, diethylaminosulfur trifluoride, and the like.

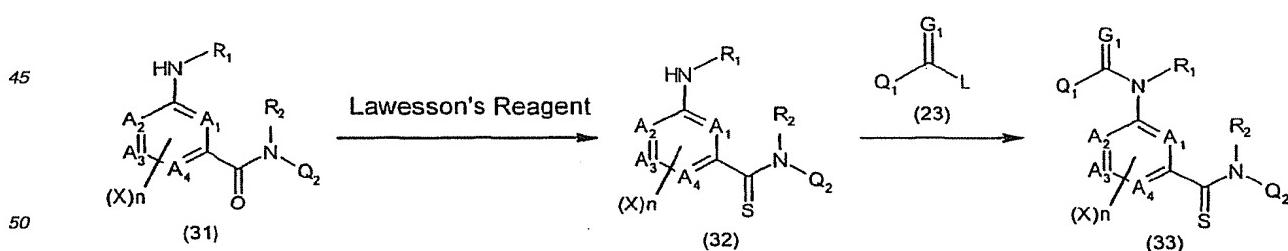
2-(iii) Formula (29) + Formula (20) \rightarrow Formula (30)

[0087] A compound represented by Formula (30) can be prepared by reacting the compound represented by Formula (29) with a compound represented by Formula (20) according to the conditions described in 1-(i).

2-(iv) Formula (28) + Formula (20) \rightarrow Formula (30)

35 [0088] The compound represented by Formula (30) can be also prepared by reacting the compound represented by Formula (28) with the compound represented by Formula (20) according to the conditions of using a condensing agent as described in 1-(i) or the conditions of using the mixed acid anhydride method.

40 Preparation Process 3



wherein A₁, A₂, A₃, A₄, G₁, R₁, R₂, X, n, Q₁, Q₂ and L have the same meaning as those described in the above.

3-(i) Formula (31) \rightarrow Formula (32)

[0089] A compound represented by Formula (32) can be prepared by reacting a compound represented by Formula

(31) with the Lawesson's reagent according to the known conditions as described in Synthesis, p.463 (1993) or in Synthesis, p.829 (1984). Conditions such as a solvent, a reaction temperature and the like are not limited to those as described in the literature.

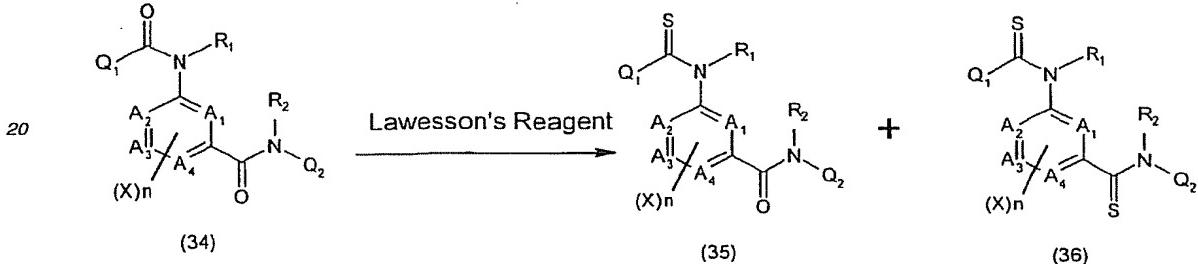
5 3-(ii) Formula (32) + Formula (23) \rightarrow Formula (33)

[0090] A compound represented by Formula (33) can be prepared by reacting the compound represented by Formula (32) with the compound represented by Formula (23) according to the conditions as described in 1-(i).

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Preparation Process 4:

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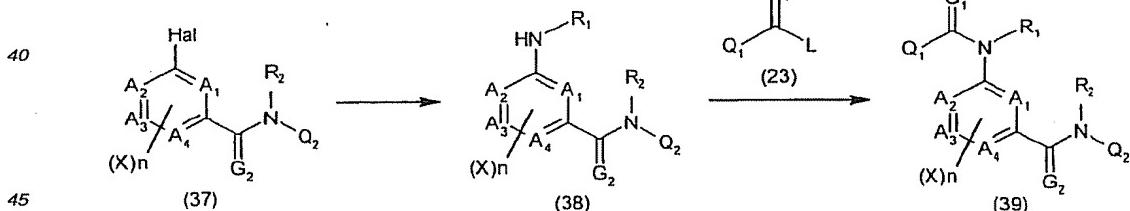
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wherein A₁, A₂, A₃, A₄, R₁, R₂, X, n, Q₁ and Q₂ have the same meaning as those described in the above.

[0091] A compound represented by Formula (35) and a compound represented by Formula (36) can be prepared from the compound represented by Formula (34) according to the conditions as described in 3-(i). Conditions such as a solvent, a reaction temperature and the like are not limited to those as described in the literature. These two compounds can be easily separated and purified by means of a known separation and purification technique such as silica gel column chromatography.

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Preparation Process 5



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wherein A₁, A₂, A₃, A₄, G₁, G₂, R₁, R₂, X, n, Q₁, Q₂ and L have the same meaning as those described in the above.

50 5-(i) Formula (37) → Formula (38)

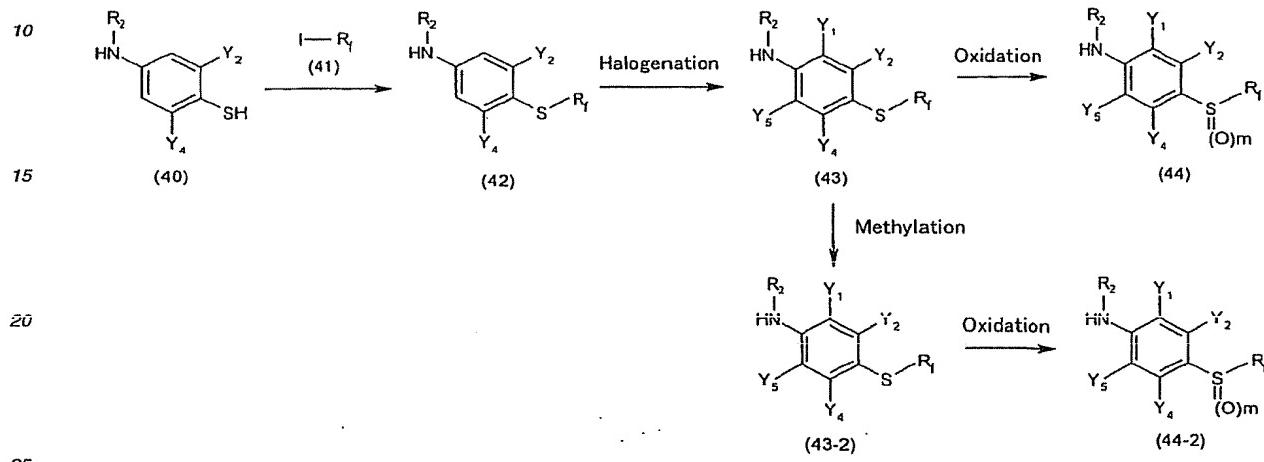
[0092] A compound represented by Formula (38) can be prepared by carrying out an amination reaction using ammonia according to the conditions as described in, for example, J. Org. Chem., p. 280 (1958). Conditions such as a reaction solvent are not limited to those as described in the literature, and any inert solvent which does not impede the reaction significantly may be used. A reaction temperature and a reaction time may also be selected in accordance with the proceeding of the reaction. Further, it is also possible to use methylamine, ethylamine and the like, in addition to ammonia, as the aminating agent.

5-(ii) Formula (38) + Formula (23) → Formula (39)

[0093] A compound represented by Formula (39) can be prepared by reacting the compound represented by Formula (38) with a compound represented by Formula (23) according to the conditions as described in 1-(i).

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Preparation Process 6



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wherein R₂ has the same meaning as described in the above; Y₁ and Y₅ each represent a methyl group, a chlorine atom, a bromine atom or an iodine atom; Y₂ and Y₄ have the same meaning as those described in the above; R_f represents a C1-C6 perfluoroalkyl group; and m represents 1 or 2.

30

6- (i) Formula (40) + Formula (41) → Formula (42)

[0094] A compound represented by Formula (42) can be prepared by reacting an aminothiophenol represented by Formula (40) with a haloalkyl iodide represented by Formula (41) according to the method as described in J. Fluorine Chem., p.207 (1994).

[0095] The haloalkyl iodide represented by Formula (41) may include, for example, trifluoromethyl iodide, pentafluoroethyl iodide, heptafluoro-n-propyl iodide, heptafluoroisopropyl iodide, nonafluoro-n-butyl iodide, nonafluoro-2-butyl iodide and the like, and these compounds represented by Formula (40) may be suitably used in the range of 1 to 10-fold molar equivalents.

[0096] The solvent used in this step is not limited to those solvents as described in the above literature, and the solvent may be any of those not impeding the reaction significantly, for example, water; aromatic hydrocarbons such as benzene, toluene and xylene; halogenated hydrocarbons such as dichloromethane, chloroform and tetrachlorocarbon; chained or cyclic ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; ketones such as acetone, methyl isobutyl ketone and cyclohexanone; amides such as dimethyl formamide and dimethylacetamide; nitriles such as acetonitrile; or inert solvents such as 1,3-dimethyl-2-imidazolidinone, hexamethylphosphosphate triamide and the like, which may be used alone or in combination of two or more. A polar solvent is particularly preferred. The reaction temperature may be suitably selected within the range of -20°C to the reflux temperature of the solvent used, and the reaction time within the range of several minutes to 96 hours.

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6-(ii) Formula (42) → Formula (43)

[0097] A compound represented by Formula (43) can be prepared using a suitable halogenating agent, for example, according to the method as described in Synth. Commun., p.1261 (1989).

[0098] The halogenating agent may include, for example, chlorine, bromine, iodine, N-chlorosuccinimide, N-bromo-succinimide, N-iodosuccinimide and the like, and these compounds represented by Formula (42) may be suitably used in the range of 1 to 10-fold molar equivalents.

[0099] In this step, it is possible to use a suitable solvent. Such solvent for use is not limited to the solvents as described

in the above literature, and the solvent may be any of those not impeding the reaction significantly, for example, water; aromatic hydrocarbons such as benzene, toluene and xylene; halogenated hydrocarbons such as dichloromethane, chloroform and tetrachlorocarbon; chained or cyclic ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; ketones such as acetone, methyl isobutyl ketone and cyclohexanone; amides such as dimethyl formamide and dimethylacetamide; nitriles such as acetonitrile; or inert solvents such as 1,3-dimethyl-2-imidazolidinone, hexamethylphosphate triamide and the like, which may used alone or in combination of two or more. A polar solvent is particularly preferred. The reaction temperature may be suitably selected within the range of -20°C to the reflux temperature of the solvent used, and the reaction time within the range of several minutes to 96 hours.

6-(iii) Formula (43) \rightarrow Formula (44)

[0100] A compound represented by Formula (44) can be prepared using a suitable oxidizing agent, for example, according to the method as described in *Tetrahedron Lett.*, p.4955 (1994).

[0101] The oxidizing agent may include, for example, an organic peracid such as m-chloroperbenzoic acid, sodium meta-periodate, hydrogen peroxide, ozone, selenium dioxide, chromic acid, dinitrogen tetroxide, acyl nitrate, iodine, bromine, N-bromosuccinimide, iodosyl benzyl, t-butyl hypochlorite and the like.

[0102] The solvent used in this step is not limited to the solvents described in the above literature, and the solvent may be any of those not impeding the reaction of the invention significantly. The solvent can be used alone or in combination of two or more. A polar solvent is particularly preferred. The reaction temperature may be suitably selected within the range of -20°C to the reflux temperature of the solvent used, and the reaction time within the range of several minutes to 96 hours.

6-(iv) Formula (43) \rightarrow Formula (43-2)

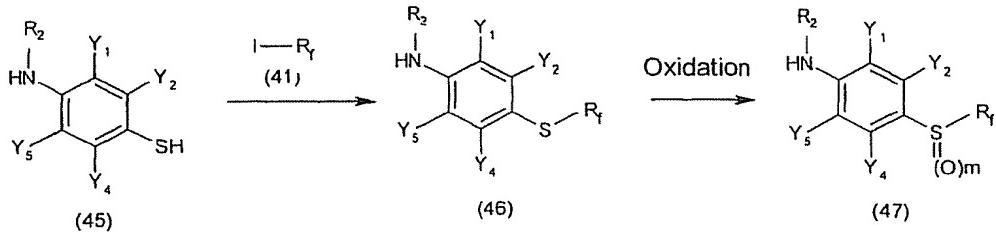
[0103] A compound represented by Formula (43-2), wherein either of Y_1 and Y_5 essentially represents a methyl group, can be prepared from the compound represented by Formula (43) using a suitable methylating agent. In this step, for example, the process described in Tetrahedron Lett., p.6237 (2000) can be carried out.

6-(v) Formula (43-2) → Formula (44-2)

[0104] A compound represented by Formula (44-2), wherein either of Y_1 and Y_5 essentially represents a methyl group, can be prepared according to the process described in 6-(iii).

[0105] Further, the compound of the present invention can be prepared using the aniline derivatives represented by Formula (43), Formula (44), Formula (43-2) and Formula (44-2), by selecting a suitable production process as described in the invention.

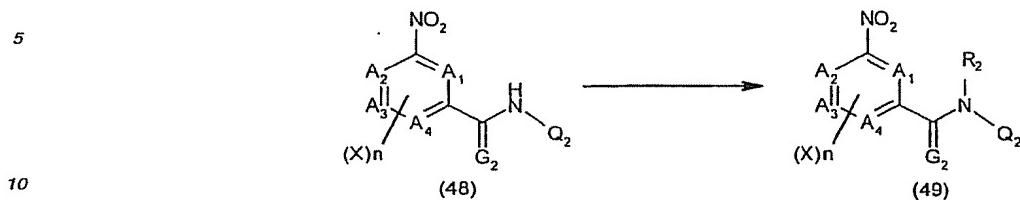
Preparation Process 7



wherein R_2 , Y_1 , Y_2 , Y_4 , Y_5 , R_f and m have the same meaning as those described in Preparation Process 6.

[0106] The aniline derivative represented by Formula (47) can be prepared according to Preparation Process 6 using a compound represented by Formula (45) as starting material, and further the compound of the invention can be prepared by selecting a suitable production process as described in the invention.

Preparation Process 8



wherein A₁, A₂, A₃, A₄, X, n, G₂, R₂ and Q₂ have the same meaning as those described above.

[0107] A compound represented by Formula (49) can be prepared by reacting a compound represented by Formula (48) with a suitable reacting agent in a suitable solvent using a suitable base.

[0108] For the solvent, it may be any of those which do not impede the reaction significantly, for example, aliphatic hydrocarbons such as hexane, cyclohexane and methylocyclohexane; aromatic hydrocarbons such as benzene, xylene and toluene; halogenated hydrocarbons such as dichloromethane, chloroform, tetrachlorocarbon and 1,2-dichloroethane; ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; amides such as dimethylformamide and dimethylacetamide; nitriles such as acetonitrile and propionitrile; ketones such as acetone, methyl isobutyl ketone, cyclohexanone and methyl ethyl ketone; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; 1,3-dimethyl-2-imidazolidinone, sulfolane, dimethylsulfoxide, water and the like, which can be used alone or in combination of two or more.

[0109] For the base, use can be made of, for example, organic bases such as triethylamine, tributylamine, pyridine, 4-dimethylaminopyridine; an alkali metal hydroxide such as sodium hydroxide and potassium hydroxide; a carbonate such as sodium hydrogen carbonate and potassium carbonate; a phosphate such as potassium monohydrogen phosphate, trisodium phosphate; an alkali metal hydride such as sodium hydride; an alkali metal alkoxide such as sodium methoxide, sodium ethoxide; an organic lithium such as n-butyllithium; a Grignard reagent such as ethylmagnesium bromide; and the like.

[0110] Such base can be appropriately selected or used as solvent, in the range of 0.01 to 5-fold molar equivalents with respect to the compound represented by Formula (48).

[0111] For the reacting agent, use can be made of, for example, an alkyl halide such as methyl iodide, ethyl bromide, trifluoromethyl iodide, 2,2,2-trifluoroethyl iodide; an aryl halide such as aryl iodide; a propargyl halide such as propargyl bromide; an acyl halide such as acetyl chloride; an acid anhydride such as trifluoroacetic acid anhydride; an alkyl sulfate such as dimethyl sulfate, diethyl sulfate; and the like.

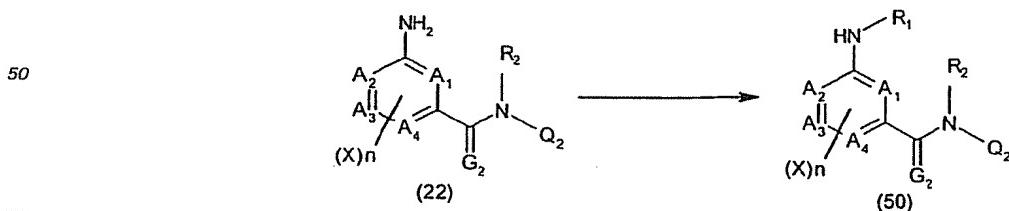
[0112] Such reacting agent can be appropriately selected or used as solvent, in the range of 1 to 5-fold molar equivalents with respect to the compound represented by Formula (48).

[0113] The reaction temperature may be appropriately selected in the range from -80°C to the reflux temperature of the solvent used, and the reaction time in the range from several minutes to 96 hours.

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Preparation Process 9

45



wherein A₁, A₂, A₃, A₄, X, n, G₂, R₁, R₂ and Q₂ have the same meaning as those described above.

9-(i) Formula (22) → Formula (50)

[0114] A compound represented by Formula (50) can be prepared by reacting a compound represented by Formula (22) with aldehydes or ketones in a suitable solvent, and reacting under a hydrogen atmosphere in the presence of a suitable catalyst.

[0115] The solvent may be any of those which do not impede the reaction significantly, for example, aliphatic hydrocarbons such as hexane, cyclohexane and methylcyclohexane; aromatic hydrocarbons such as benzene, xylene and toluene; halogenated hydrocarbons such as dichloromethane, chloroform, tetrachlorocarbon and 1,2-dichloroethane; ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; amides such as dimethylformamide and dimethylacetamide; nitriles such as acetonitrile and propionitrile; ketones such as acetone, methyl isobutyl ketone, cyclohexanone and methyl ethyl ketone; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; 1,3-dimehtyl-2-imidazolidinone, sulfolane, dimethylsulfoxide, water and the like, which can be used alone or in combination of two or more.

[0116] Examples of the catalyst may include palladium-based catalysts such as palladium-carbon, palladium hydroxide-carbon; nickel-based catalysts such as Raney nickel; cobalt catalysts, platinum catalysts, ruthenium catalysts, rhodium catalysts and the like.

[0117] Examples of the aldehydes may include, for example, formaldehyde, acetaldehyde, propionaldehyde, trifluoroacetaldehyde, difluoroacetaldehyde, fluoroacetaldehyde, chloroacetaldehyde, dichloroacetaldehyde, trichloroacetaldehyde, bromoacetaldehyde and the like.

[0118] Examples of the ketones may include, for example, acetone, perfluoroacetone, methyl ethyl ketone and the like.

[0119] The reaction pressure may be appropriately selected in the range of 1 atm to 100 atm.

[0120] The reaction temperature may be appropriately selected in the range from -20°C to the reflux temperature of the solvent used, and the reaction time may be appropriately selected in the range from several minutes to 96 hours.

9-(ii) Formula (22) → Formula (50) (Alternative process 1)

[0121] The compound represented by Formula (50) can be prepared by reacting the compound represented by Formula (22) with an aldehyde or a ketone in a suitable solvent, and treating the product with a suitable reducing agent.

[0122] The solvent may be any of those which do not impede the reaction significantly, for example, aliphatic hydrocarbons such as hexane, cyclohexane and methylcyclohexane; aromatic hydrocarbons such as benzene, xylene and toluene; halogenated hydrocarbons such as dichloromethane, chloroform, tetrachlorocarbon and 1,2-dichloroethane; ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; amides such as dimethylformamide and dimethylacetamide; nitriles such as acetonitrile and propionitrile; ketones such as acetone, methyl isobutyl ketone, cyclohexanone and methyl ethyl ketone; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; 1,3-dimehtyl-2-imidazolidinone, sulfolane, dimethylsulfoxide, water and the like, which can be used alone or in combination of two or more.

[0123] Examples of the reducing agent may include, for example, borohydrides such as sodium borohydride, sodium cyanoborohydride, sodium triacetate borohydride and the like.

[0124] Examples of the aldehydes may include, for example, formaldehyde, acetaldehyde, propionaldehyde, trifluoroacetaldehyde, difluoroacetaldehyde, fluoroacetaldehyde, chloroacetaldehyde, dichloroacetaldehyde, trichloroacetaldehyde, bromoacetaldehyde and the like.

[0125] Examples of the ketones may include, for example, acetone, perfluoroacetone, methyl ethyl ketone and the like.

[0126] The reaction temperature may be appropriately selected in the range from -20°C to the reflux temperature of the solvent used, and the reaction time may be appropriately selected in the range from several minutes to 96 hours.

9-(iii) Formula (22) → Formula (50) (Alternative process 2)

[0127] The compound represented by Formula (50), wherein R₁ is methyl, can be prepared by reacting the compound represented by Formula (22) with a formylating agent in a suitable solvent or without solvent, and treating the product with a suitable reducing agent.

[0128] The solvent may be any of those which do not impede the reaction significantly, for example, aliphatic hydrocarbons such as hexane, cyclohexane and methylcyclohexane; aromatic hydrocarbons such as benzene, xylene and toluene; halogenated hydrocarbons such as dichloromethane, chloroform, tetrachlorocarbon and 1,2-dichloroethane; ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; amides such as dimethylformamide and dimethylacetamide; nitriles such as acetonitrile and propionitrile; ketones such as acetone, methyl isobutyl ketone, cyclohexanone and methyl ethyl ketone; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; 1,3-dimehtyl-2-imidazolidinone, sulfolane, dimethylsulfoxide, water and the like, which can be used alone or in combination of two or more.

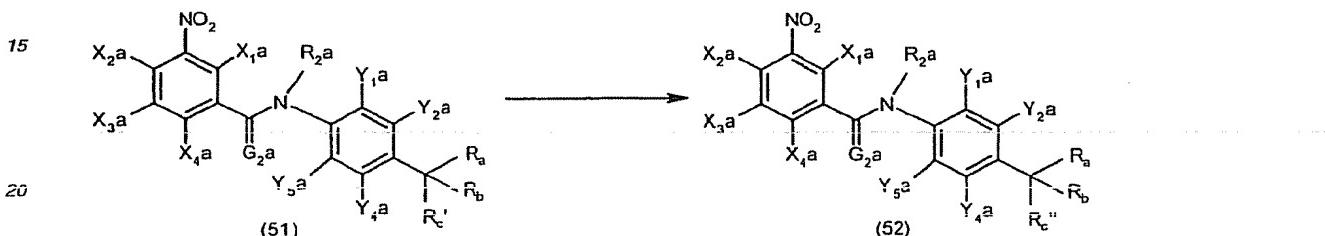
[0129] Examples of the formylating agent may include, for example, formaldehyde, formic acid, fluoroformic acid, formic acid anhydrides such as formyl(2,2-dimethylpropioic acid), formic acid esters such as phenyl formate, pentafluorobenzaldehyde, oxazole and the like.

[0130] Examples of the reducing agent may include, for example, inorganic acids such as sulfuric acid, organic acids such as formic acid, borohydrides such as sodium borohydride and sodium cyanoborohydride, boronic acid, lithium aluminum hydride and the like.

[0131] The reaction temperature may be appropriately selected in the range from -20°C to the reflux temperature of the solvent used, and the reaction time may be appropriately selected in the range from several minutes to 96 hours.

10

Preparation Process 10



wherein X_{1a} , X_{2a} , X_{3a} , X_{4a} , Y_{1a} , Y_{2a} , Y_{3a} , Y_{4a} , G_{2a} , R_{2a} , R_a and R_b have the same meaning as those described above; R_c' in Formula (51) represents a hydroxyl group or a group $-O-R_d$ (wherein R_d has the same meaning as described above); and R_c'' in Formula (52) represents a chlorine atom, a bromine atom or an iodine atom.

[0132] A chlorine compound (or a bromine compound, an iodine compound) represented by Formula (52) can be prepared by reacting a compound represented by Formula (51) with a suitable halogenating agent in a suitable solvent or without a solvent. In this step, a suitable additive may also be used.

[0133] The solvent may be any of those which do not impede the reaction significantly, for example, aliphatic hydrocarbons such as hexane, cyclohexane and methylcyclohexane; aromatic hydrocarbons such as benzene, xylene and toluene; halogenated hydrocarbons such as dichloromethane, chloroform, tetrachlorocarbon and 1,2-dichloroethane; ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; amides such as dimethylformamide and dimethylacetamide; nitriles such as acetonitrile and propionitrile; ketones such as acetone, methyl isobutyl ketone and cyclohexanone; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; 1,3-dimethyl-2-imidazolidinone, sulfolane, dimethylsulfoxide, water and the like, which can be used alone or in combination of two or more.

[0134] Examples of the halogenating agent may include, for example, thionyl chloride, thionyl bromide, phosphorus oxychloride, oxalyl chloride, phosphorus trichloride, phosphorus tribromide, phosphorus pentachloride, a Rydon's reagent, sulfonyl halides such as methanesulfonyl chloride, p-toluenesulfonyl chloride and benzenesulfonyl chloride, sulfonium halide, a sulfonic acid ester, chlorine, bromine, iodine, hypohalogenic acid ester, N-halogenoamine, hydrogen chloride, hydrogen bromide, sodium bromide, potassium bromide, cyanuric chloride, 1,3-dichloro-1,2,4-triazole, titanium (IV) chloride, vanadium(IV) chloride, arsenic(III) chloride, N,N-diethyl-1,2,2-trichlorovinylamine, trichloroacetonitrile, sodium chloride, ammonium bromide, N,N-dimethylchloroforminium chloride, N,N-dimethylchloroforminium bromide, phosphorus trichloride, phosphorus tribromide, N,N-dimethylphosphoamidine dichloride and the like.

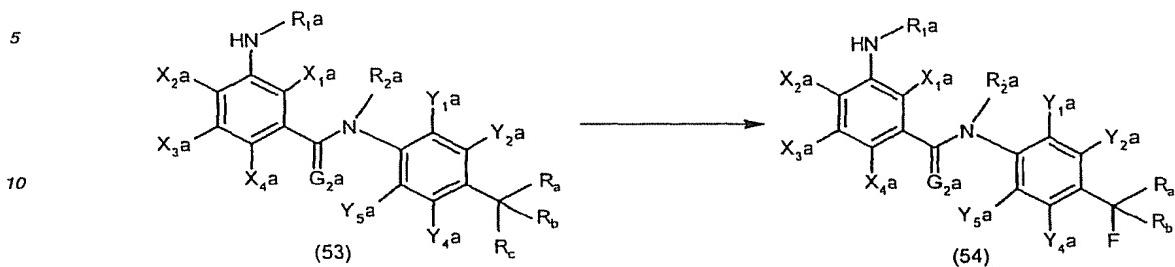
[0135] An additive may include, for example, metal salts such as zinc chloride, lithium bromide and the like, phase-transfer catalysts, organic bases such as hexamethyl phosphoric acid triamide, inorganic acids such as sulfuric acid, N,N-dimethyl formamide and the like.

[0136] Such halogenating agent may be appropriately selected or used as solvent, in the range of 0.01 to 10-fold molar equivalents with respect to the compound represented by Formula (1).

[0137] The reaction temperature may be appropriately selected in the range from -80°C to the reflux temperature of the solvent used, and the reaction time may be appropriately selected in the range from several minutes to 96 hours.

55

Preparation Process 11



15 wherein X_1a , X_2a , X_3a , X_4a , Y_1a , Y_2a , Y_4a , Y_5a , G_2a , R_1a , R_2a , R_a , R_b and R_c have the same meaning as those described above.

[0138] A compound represented by Formula (54) can be prepared by reacting a compound represented by Formula (53) with a suitable fluorinating agent in a suitable solvent or without a solvent.

[0139] The solvent may be any of those which do not impede the reaction significantly, for example, aliphatic hydrocarbons such as hexane, cyclohexane and methylcyclohexane; aromatic hydrocarbons such as benzene, xylene and toluene; halogenated hydrocarbons such as dichloromethane, chloroform, tetrachlorocarbon and 1,2-dichloroethane; ethers such as diethyl ether, dioxane, tetrahydrofuran and 1,2-dimethoxyethane; amides such as dimethylformamide and dimethylacetamide; nitriles such as acetonitrile and propionitrile; ketones such as acetone, methyl isobutyl ketone, cyclohexanone and methyl ethyl ketone; esters such as ethyl acetate and butyl acetate; alcohols such as methanol and ethanol; 1,3-dimethyl-2-imidazolidinone, sulfolane, dimethylsulfoxide, water and the like, which can be used alone or in combination of two or more.

[0140] Examples of the fluorinating agent may include 1,1,2,2-tetrafluoroethyl diethylamine, 2-chloro-1,1,2-trifluoroethyl diethylamine, trifluorodiphenylphospholane, difluorotriphenylphospholane, fluoroformic acid esters, sulfur tetrafluoride, potassium fluoride, potassium hydrogen fluoride, cesium fluoride, rubidium fluoride, sodium fluoride, lithium fluoride, antimony(III) fluoride, antimony(V) fluoride, zinc fluoride, cobalt fluoride, lead fluoride, copper fluoride, mercury(II) fluoride, silver fluoride, silver fluoroborate, thallium(I) fluoride, molybdenum(VI) fluoride, arsenic(III) fluoride, bromine fluoride, selenium tetrafluoride, tris(dimethylamino)sulfonium difluorotrimethylsilicate, sodium hexafluorosilicate, quaternary ammonium fluorides, (2-chloroethyl) diethylamine, diethylaminosulfurtrifluoride, morpholinosulfurtrifluoride, silicon tetrafluoride, hydrogen fluoride, hydrofluoric acid, hydrogen fluoride-pyridine complex, hydrogen fluoride-triethylamine complex, hydrogen fluoride salts, bis(2-methoxyethyl)amino sulfurtrifluoride, 2,2-difluoro-1,3-dimethyl-2-imidazolidinone, iodine pentafluoride, tris(diethylamino)phosphonium 2,2,3,3,4,4-hexafluorocyclobutanilide, triethylammonium hexafluorocyclobutanilide, hexafluoropropene and the like. Such fluorinating agent can be used alone or in combination of two or more. The fluorinating agent may be appropriately selected or used as solvent, in the range of 1 to 10-fold molar equivalents with respect to the compound represented by Formula (53).

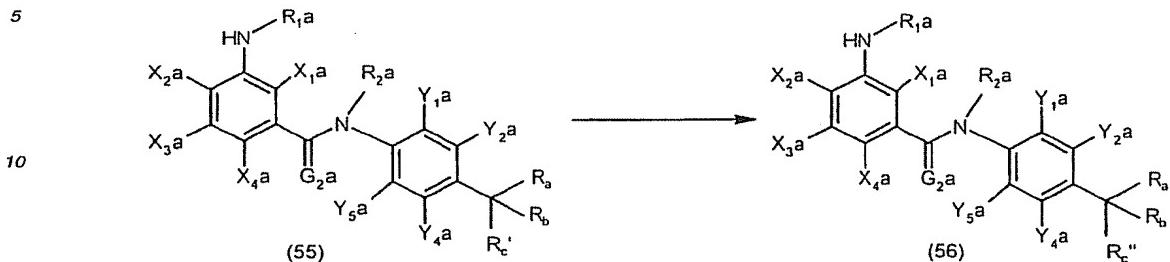
[0141] Additives may be used, and examples thereof may include crown ethers such as 18-crown-6, interline transfer catalysts such as a tetraphenylphosphonium salt, inorganic salts such as calcium fluoride and calcium chloride, metal oxides such as mercury oxide, ion exchange resin and the like. Such additives can be not only added to the reaction system but also used as a pretreating agent for the fluorinating agent.

[0142] The reaction temperature may be appropriately selected in the range from -80°C to the reflux temperature of the solvent used, and the reaction time may be appropriately selected in the range from several minutes to 96 hours.

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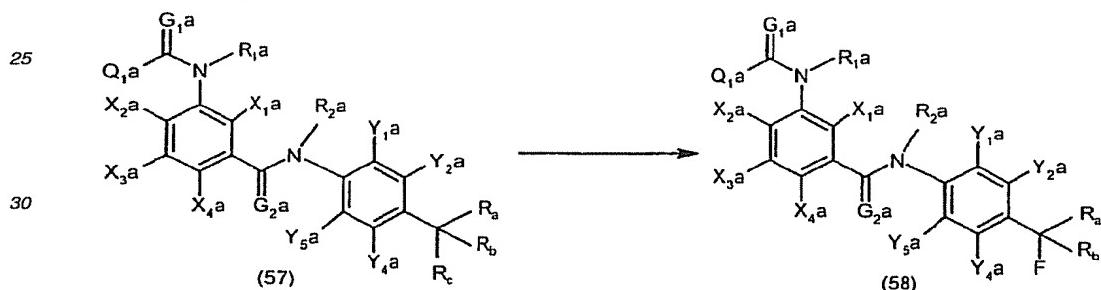
Preparation Process 12



15 wherein X_1a , X_2a , X_3a , X_4a , Y_1a , Y_2a , Y_3a , Y_4a , G_2a , R_1a , R_2a , R_a , R_b , R_c' and R_c'' have the same meaning as those described above.

20 [0143] A compound represented by Formula (56) can be prepared from the compound represented by Formula (55) according to the process described in Preparation Process 10.

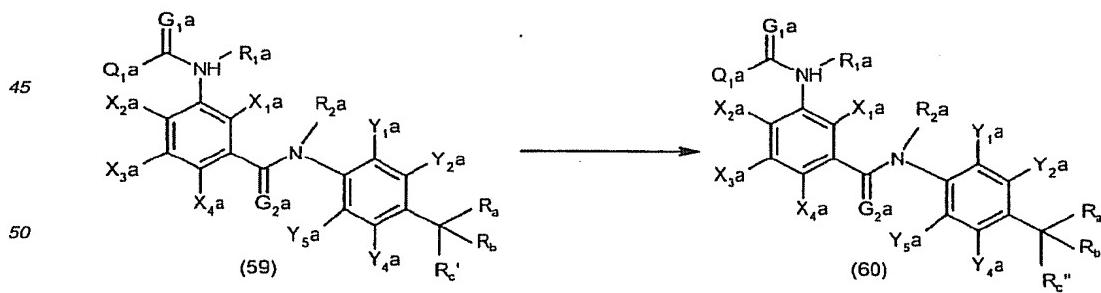
Preparation Process 13



35 wherein X_1a , X_2a , X_3a , X_4a , Y_1a , Y_2a , Y_3a , Y_4a , G_1a , G_2a , R_1a , R_2a , R_a , R_b , R_c and Q_1a have the same meaning as those described above.

40 [0144] A compound represented by Formula (58) can be prepared from the compound represented by Formula (57) according to the process described in Preparation Process 11.

Preparation Process 14



55 wherein X_1a , X_2a , X_3a , X_4a , Y_1a , Y_2a , Y_3a , Y_4a , G_1a , G_2a , R_1a , R_2a , R_a , R_b , R_c' , R_c'' and Q_1a have the same meaning as those described above.

[0145] A compound represented by Formula (60) can be prepared from the compound represented by Formula (59) according to the process described in Preparation Process 10.

[0146] In all of the processes for preparation as described in the above, the desired products may be isolated from

the reaction system after the reaction is completed according to conventional methods, but if required, purification can be carried out by operations such as recrystallization, column chromatography, distillation and the like. Further, the desired product can be also provided to the subsequent reaction process without being separated from the reaction system.

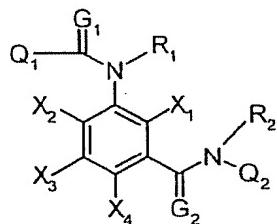
5 [0147] Hereinbelow, the representative compounds among the compounds represented by Formula (1) as the active ingredient for the insecticide of the invention will be given in Table 1 to Table 5, but the invention is not intended to be limited thereto.

[0148] In Table 6 and Table 7, the compound representative of the compound of Formula (6) will be given, but the invention is not intended to be limited thereto.

10 [0149] In Table 8 to Table 10, the compounds representative of the compounds of Formula (8), Formula (11) and Formula (13), but the invention is not intended to be limited thereto.

15 [0150] In addition, the abbreviations in the tables have the following meanings: "n-" represents normal, "Me" a methyl group, "Et" an ethyl group, "n-Pr" a normal propyl group, "i-Pr" an isopropyl group, "n-Bu" a normal butyl group, "i-Bu" an isobutyl group, "s-Bu" a secondary butyl group, "t-Bu" a tertiary butyl group, "H" a hydrogen atom, "O" an oxygen atom, "S" a sulfur atom, "C" a carbon atom, "N" a nitrogen atom, "F" a fluorine atom, "Cl" a chlorine atom, "Br" a bromine atom, "I" an iodine atom, "CF₃" a trifluoromethyl group, "MeS" a methylthio group, "MeSO" "methylsulfinyl group, "MeSO₂" a methylsulfonyl group, "MeO" a methoxy group "NH₂" an amino group, "MeNH" a methylamino group, and "Me₂N" is a dimethylamino group; and "OH" a hydroxyl group, respectively.

20 [Table 1]



25 (X₁, X₂, X₃, X₄, R₁, R₂ = a hydrogen atom, G₁, G₂ = an oxygen atom)

Comp. No.	Q ₁	Q ₂
1	phenyl	2,6-dimethyl-4-(pentafluoroethyl)phenyl
2	phenyl	2,6-dichloro-4-(pentafluoroethyl)phenyl
3	2-fluorophenyl	2,6-dichloro-4-(pentafluoroethyl)phenyl
4	phenyl	2,6-dibromo-4-(pentafluoroethyl)phenyl
5	2-fluorophenyl	2,6-dibromo-4-(pentafluoroethyl)phenyl
6	phenyl	2,6-dichloro-4-(heptafluoroisopropyl) phenyl
7	phenyl	2,6-dibromo-4-(heptafluoroisopropyl)phenyl
8	2-fluorophenyl	2,6-dibromo-4-(heptafluoroisopropyl)phenyl
9	phenyl	2,6-dimethyl-4-(heptafluoro-n-propyl)phenyl
10	phenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
11	2-methylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
12	3-methylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
13	4-methylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
14	2-ethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15	3-ethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
16	4-ethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

Comp. No.	Q ₁	Q ₂
5	17	2-fluorophenyl
	18	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	19	3-fluorophenyl
	20	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10	21	4-fluorophenyl
	22	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	23	3-chlorophenyl
	24	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15	25	4-chlorophenyl
	26	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	27	2-bromophenyl
	28	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20	29	3-bromophenyl
	30	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	31	4-bromophenyl
	32	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25	33	3-iodophenyl
	34	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	35	4-iodophenyl
	36	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30	37	2-nitrophenyl
	38	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	39	3-nitrophenyl
	40	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35	41	4-nitrophenyl
	42	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	43	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	44	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40	45	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	46	2-hydroxyphenyl
	47	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	48	3-methoxyphenyl
45	49	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	50	4-methoxyphenyl
	51	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50	52	2-phenoxyphenyl
	53	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	54	4-(1,1-dimethylethyl)phenyl
		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		3-(dimethylamino)phenyl
		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		4-(dimethylamino)phenyl
55		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		4-trifluoromethoxyphenyl
		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		2-(acetylamino)phenyl
		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		3-(acetylamino)phenyl
		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		4-(acetylamino)phenyl
		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		2-acetoxyphenyl
		2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
		2-(methoxycarbonyl)phenyl
		4-(methoxycarbonyl)phenyl

(continued)

Comp. No.	Q ₁	Q ₂
5	2-(4-trifluoromethylphenyl) phenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
56	2,3-dimethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
57	2,4-dimethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
58	2,6-dimethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10	59	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
60	2,3-difluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
61	2,4-difluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15	62	2,5-difluorophenyl
63	2,6-difluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
64	3,4-difluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20	65	2,3-dichlorophenyl
66	2,4-dichlorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
67	2,5-dichlorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25	68	2,6-dichlorophenyl
69	3,4-dichlorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
70	2,4-dinitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
71	3,4-dinitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30	72	2,6-dimethoxyphenyl
73	3,5-dimethoxyphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
74	3-methyl-4-nitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35	75	5-amino-2-fluorophenyl
76	3-fluoro-2-methylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
77	2-fluoro-5-nitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40	78	4-fluoro-3-nitrophenyl
79	5-fluoro-2-nitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
80	2-fluoro-6-iodophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
81	2-fluoro-5-trifluoromethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45	82	2-chloro-4-nitrophenyl
83	2-chloro-4-fluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
84	2-chloro-6-fluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
85	3-chloro-4-fluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50	86	4-chloro-2-fluorophenyl
87	4-chloro-2-nitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
88	3-methoxy-4-nitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
89	2-methoxy-4-nitrophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
55	90	2,3,4-trifluorophenyl
91	2,4,6-trimethylphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
92	2,3,6-trifluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

Comp. No.	Q ₁	Q ₂
5 93	2,4,5-trimethoxyphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
94	3,4,5-trimethoxyphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
95	2,3,4,5,6-pentafluorophenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
96	2-biphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10 97	3-biphenyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
98	1-naphthyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
99	2-naphthyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15 100	pyridin-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
101	pyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
102	pyridin-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20 103	2-methylpyridin-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
104	3-methylpyridin-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
105	2-fluoropyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25 106	2-chloropyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
107	2-chloropyridin-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
108	2-chloropyridin-6-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30 109	2-chloropyridin-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
110	5-chloropyridin-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
111	4-trifluoromethylpyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35 112	3-hydroxypyridin-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
113	2-phenoxyypyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
114	2-methylthiopyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40 115	2,6-dimethoxyypyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
116	2,3-dichloropyridin-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
117	2,5-dichloropyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45 118	2,6-dichloropyridin-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
119	3,5-dichloropyridin-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
120	(pyridine-N-oxide)-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45 121	N-methylpyrrol-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
122	pyrazin-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
123	2-methylpyrazin-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50 124	4-trifluoromethylpyrimidin-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
125	furan-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
126	furan-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
55 127	2-tetrahydrofuranyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
128	3-tetrahydrofuranyl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
129	benzofuran-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
130	tetrahydropyran-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

Comp. No.	Q ₁	Q ₂
5	131 2-methyl-5,6-dihydro-9Hpyran-3-yl	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
	132 thiophen-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	133 thiophen-3-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10	134 3-methylthiophen-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	135 2-nitrothiophen-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	136 2-methylthiophen-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15	137 3-chlorothiophen-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	138 2-chlorothiophen-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	139 3-bromo thiophen-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20	140 2-bromo thiophen-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	141 3-iodothiophen-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	142 3-phenylthiophen-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25	143 2,4-dimethylthiophen-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	144 benzothiophen-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	145 4-nitro-1H-pyrrol-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30	146 3-ethyl-3H-pyrazol-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	147 1-methyl-3-nitro-1H-pyrazol-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	148 3-chloro-1-methyl-1H-pyrazol-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35	149 3-bromo-1-methyl-1H-pyrazol-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	150 1-methyl-3-trifluoromethyl-1H-pyrazol-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	151 1-methyl-5-trifluoromethyl-1H-pyrazol-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40	152 isoxazol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	153 4-trifluoromethylthiazol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	154 2,4-dimethylthiazol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45	155 2-ethyl-4-methylthiazol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	156 2-chloro-4-methylthiazol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	157 3-methyl-isothiazol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50	158 3,4-dichloro-isothiazol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	159 3-chlorobenzothiazol-2-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	160 2,2-difluoro-benzo[1.3]dioxol-5-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	161 2,2-difluoro-benzo[1.3]dioxol-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
55	162 2-phenylquinolin-4-yl	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	163 phenyl	2-bromo-4-(heptafluoroisopropyl)-6-methylphenyl
	164 phenyl	2-ethyl-4-(heptafluoroisopropyl)-6-methylphenyl
	165 2-fluorophenyl	2-ethyl-4-(heptafluoroisopropyl)-6-methylphenyl
	166 phenyl	4-(heptafluoroisopropyl)-2-iodo-6-methylphenyl
	167 phenyl	4-(heptafluoroisopropyl)-2-hydroxy-6-methylphenyl
	168 phenyl	2-chloro-6-ethyl-4-(heptafluoroisopropyl)phenyl

(continued)

Comp. No.	Q_1	Q_2
5	169 phenyl	2-bromo-6-ethyl-4-(heptafluoroisopropyl)phenyl
	170 2-fluorophenyl	2-bromo-6-ethyl-4-(heptafluoroisopropyl)phenyl
10	171 phenyl	2-ethyl-4-(heptafluoroisopropyl)-6-iodophenyl
	172 2-fluorophenyl	2-ethyl-4-(heptafluoroisopropyl)-6-iodophenyl
15	173 4-nitrophenyl	2-ethyl-4-(heptafluoroisopropyl)-6-iodophenyl
	174 4-cyanophenyl	2-ethyl-4-(heptafluoroisopropyl)-6-iodophenyl
20	175 4-nitrophenyl	4-(heptafluoroisopropyl)-2-methyl-6-n-propylphenyl
	176 phenyl	4-(heptafluoroisopropyl)-2-isopropyl-6-methylphenyl
25	177 2-fluorophenyl	4-(heptafluoroisopropyl)-2-isopropyl-6-methylphenyl
	178 phenyl	2-bromo-4-(heptafluoroisopropyl)-6-n-propylphenyl
30	179 2-fluorophenyl	2-bromo-4-(heptafluoroisopropyl)-6-n-propylphenyl
	180 4-nitrophenyl	2-bromo-4-(heptafluoroisopropyl)-6-n-propylphenyl
35	181 4-cyanophenyl	2-bromo-4-(heptafluoroisopropyl)-6-n-propylphenyl
	182 phenyl	4-(heptafluoroisopropyl)-2-iodo-6-n-propylphenyl
40	183 2-fluorophenyl	4-(heptafluoroisopropyl)-2-iodo-6-n-propylphenyl
	184 4-nitrophenyl	4-(heptafluoroisopropyl)-2-iodo-6-n-propylphenyl
45	185 4-cyanophenyl	4-(heptafluoroisopropyl)-2-iodo-6-n-propylphenyl
	186 4-trifluoromethylphenyl	4-(heptafluoroisopropyl)-2-iodo-6-n-propylphenyl
50	187 phenyl	2-chloro-4-(heptafluoroisopropyl)-6-n-butylphenyl
	188 2-fluorophenyl	2-chloro-4-(heptafluoroisopropyl)-6-n-butylphenyl
55	189 phenyl	2-bromo-4-(heptafluoroisopropyl)-6-n-butylphenyl
	190 2-fluorophenyl	2-bromo-4-(heptafluoroisopropyl)-6-n-butylphenyl
60	191 phenyl	4-(heptafluoroisopropyl)-2-iodo-6-n-butylphenyl
	192 2-fluorophenyl	4-(heptafluoroisopropyl)-2-iodo-6-n-butylphenyl
65	193 phenyl	2-(2-butyl)-6-chloro-4-(heptafluoroisopropyl)phenyl
	194 phenyl	2-bromo-6-(2-butyl)-4-(heptafluoroisopropyl)phenyl
70	195 2-fluorophenyl	2-bromo-6-(2-butyl)-4-(heptafluoroisopropyl)phenyl
	196 phenyl	2-(2-butyl)-4-(heptafluoroisopropyl)-6-iodophenyl
75	197 2-fluorophenyl	2-bromo-6-cyano-4-(heptafluoroisopropyl)phenyl
	198 phenyl	2-bromo-4-(heptafluoroisopropyl)-6-methylthiophenyl
80	199 2-fluorophenyl	2-bromo-4-(heptafluoroisopropyl)-6-methylthiophenyl
	200 phenyl	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfinyl)phenyl
85	201 2-fluorophenyl	2-chloro-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	202 2-chloropyridin-3-yl	2-chloro-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
90	203 phenyl	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl

(continued)

Comp. No.	Q ₁	Q ₂
5	204 2-fluorophenyl	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10	205 4-fluorophenyl	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15	206 4-nitrophenyl	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20	207 4-cyanophenyl	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
25	208 2-chloropyridin-3-yl	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
30	209 phenyl	4-(heptafluoroisopropyl)-2-methylthiomethyl-6-trifluoromethylphenyl
35	210 phenyl	2-bromo-4-(heptafluoroisopropyl)-6-(trifluoromethylthio)phenyl
40	211 phenyl	2,6-dimethyl-4-(nonafluoro-n-butyl)phenyl
45	212 phenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
50	213 2-methylphenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
55	214 4-methylphenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	215 2-fluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	216 3-fluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	217 4-fluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	218 2-chlorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	219 4-chlorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	220 2-bromophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	221 2-iodophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	222 3-cyanophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	223 4-cyanophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	224 2-nitrophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	225 3-nitrophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	226 4-nitrophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	227 2-trifluoromethylphenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	228 4-trifluoromethylphenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	229 4-trifluoromethoxyphenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	230 2,3-difluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	231 2,4-difluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	232 2,5-difluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	233 2,6-difluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	234 2,4-dichlorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	235 2,6-dichlorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	236 3,4-dichlorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl

(continued)

Comp. No.	Q_1	Q_2
5 237	2-chloro-4-nitrophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
238	2-chloro-4-fluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
239	2-chloro-6-fluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
10 240	4-chloro-2-fluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
241	4-chloro-2-nitrophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
242	2,3,6-trifluorophenyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
15 243	pyridin-2-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
244	pyridin-3-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
245	2-fluoropyridin-3-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
246	2-chloropyridin-3-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
20 247	2-chloropyridin-5-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
248	2-methylthiopyridin-3-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
249	pyrazin-2-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
250	furan-2-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
251	furan-3-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
252	2-tetrahydrofuranyl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
253	benzofuran-2-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
254	thiophen-2-yl	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
30 255	2,6-difluorophenyl	2,6-dichloro-4-(trifluoromethylthio)phenyl
256	phenyl	2,6-dibromo-4-(trifluoromethylthio)phenyl
257	2,6-difluorophenyl	2,6-dibromo-4-(trifluoromethylthio)phenyl
35 258	phenyl	2,6-dibromo-4-(pentafluoroethylthio)phenyl
259	2-fluorophenyl	2,6-dibromo-4-(pentafluoroethylthio)phenyl
260	phenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
40 261	2-fluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
262	phenyl	2,6-dichloro-4-(heptafluoro-n-propylthio)phenyl
263	phenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45 264	2-methylphenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
265	4-methylphenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
266	2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
267	3-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50 268	4-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
269	2-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
270	4-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
271	2-bromophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55 272	2-iodophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
273	3-cyanophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
274	4-cyanophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

Comp. No.	Q_1	Q_2
5 275	2-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
276	3-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
277	4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10 278	2-trifluoromethylphenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
279	4-trifluoromethylphenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
280	4-trifluoromethoxyphenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15 281	2,3-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
282	2,4-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
283	2,5-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
284	2,6-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20 285	3-aminophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
286	3-(acetylamino)phenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
287	3-(methylsulfonylamino)phenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
288	2,4-dinitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25 289	3,4-dinitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
290	3-methyl-4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
291	5-amino-2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
292	2-fluoro-5-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30 293	2-fluoro-5-(methylsulfonylamino)phenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
294	2-methoxy-4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
295	3-methoxy-4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35 296	5-(acetylamino)-2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
297	2,4-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
298	2,6-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40 299	3,4-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
300	2-chloro-4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
301	2-chloro-4-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
302	2-chloro-6-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45 303	4-chloro-2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
304	4-chloro-2-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
305	2,3,6-trifluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50 306	pyridin-2-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
307	pyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
308	2-fluoropyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
309	2-chloropyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55 310	2-chloropyridin-5-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
311	2-methylthiopyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
312	2,6-dichloropyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

Comp. No.	Q_1	Q_2
5	313 2,6-dichloropyridin-4-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	314 2-chloro-6-methylpyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	315 pyridin-N-oxide-2-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	316 pyrazin-2-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	317 1-methyl-3-nitro-1Hpyrazol-4-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	318 1-methyl-3-trifluoromethyl-1Hpyrazol-4-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	319 1-methyl-5-trifluoromethyl-1Hpyrazol-4-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	320 2-tetrahydrofuranyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	321 2-phenylthiazol-4-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	322 furan-2-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	323 furan-3-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	324 2-tetrahydrofuranyl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	325 benzofuran-2-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	326 thiophen-2-yl	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	327 phenyl	2,6-diiodo-4-(heptafluoro-n-propylthio)phenyl
30	328 2-fluorophenyl	2,6-diiodo-4-(heptafluoro-n-propylthio)phenyl
	329 phenyl	2,6-dichloro-4-(heptafluoroisopropylthio)phenyl
	330 2-fluorophenyl	2,6-dichloro-4-(heptafluoroisopropylthio)phenyl
35	331 2-chloropyridin-3-yl	2,6-dichloro-4-(heptafluoroisopropylthio)phenyl
	332 phenyl	2,6-dibromo-4-(heptafluoroisopropylthio)phenyl
	333 phenyl	2,6-dibromo-4-(nonafluoro-n-butylthio)phenyl
40	334 2-fluorophenyl	2,6-dibromo-4-(nonafluoro-n-butylthio)phenyl
	335 phenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	336 2-methylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45	337 4-methylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	338 2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	339 3-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50	340 4-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	341 2-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	342 4-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55	343 2-bromophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	344 2-iodophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	345 3-cyanophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	346 4-cyanophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	347 2-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	348 3-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	349 4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	350 2-trifluoromethylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

Comp. No.	Q_1	Q_2
5	4-trifluoromethylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
351	4-trifluoromethoxyphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
352	2,3-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
353	2,4-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
10	2,5-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
354	2,6-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
355	2,4-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
15	2,6-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
356	3,4-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
357	2-chloro-4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20	2-chloro-4-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
360	2-chloro-6-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
361	4-chloro-2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25	4-chloro-2-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
362	2,3,6-trifluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
363	pyridin-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
364	pyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30	2-fluoropyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
365	2-chloropyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
366	2-chloropyridin-5-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35	2-methylthiopyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
367	pyrazin-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
368	furan-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
369	thiophen-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40	2,6-difluorophenyl	2,6-dichloro-4-(trifluoromethylsulfonyl)phenyl
370	phenyl	2,6-dibromo-4-(trifluoromethylsulfonyl)phenyl
371	2,6-difluorophenyl	2,6-dibromo-4-(trifluoromethylsulfonyl)phenyl
45	2-fluorophenyl	2,6-dichloro-4-(heptafluoroisopropylsulfonyl)phenyl
372	phenyl	2,6-dichloro-4-(heptafluoroisopropylsulfonyl)phenyl
373	2,6-difluorophenyl	2,6-dibromo-4-(heptafluoroisopropylsulfonyl)phenyl
374	2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
50	phenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
375	2-methylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
376	4-methylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
377	2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
378	3-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
379	4-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
380	2-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
381	4-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
382	2-bromophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
383	4-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
384	2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
385	3-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
386	4-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
387	2-chlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
388	4-bromophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl

(continued)

Comp. No.	Q_1	Q_2
389	2-iodophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
390	3-cyanophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
391	4-cyanophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
392	2-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
393	3-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
394	4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
395	2-trifluoromethylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
396	4-trifluoromethylphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
397	4-trifluoromethoxyphenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
398	2,3-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
399	2,4-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
400	2,5-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
401	2,6-difluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
402	2,4-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
403	2,6-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
404	3,4-dichlorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
405	2-chloro-4-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
406	2-chloro-4-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
407	2-chloro-6-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
408	4-chloro-2-fluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
409	4-chloro-2-nitrophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
410	2,3,6-trifluorophenyl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
411	pyridin-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
412	pyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
413	2-fluoropyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
414	2-chloropyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
415	2-chloropyridin-5-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
416	2-methylthiopyridin-3-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
417	pyrazin-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
418	furan-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
419	thiophen-2-yl	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
420	phenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
421	2-methylphenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
422	4-methylphenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
423	2-fluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
424	3-fluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
425	4-fluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
426	2-chlorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl

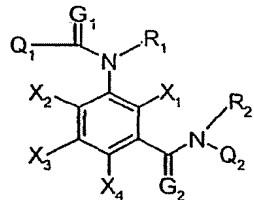
(continued)

Comp. No.	Q_1	Q_2
427	4-chlorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
428	2-bromophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
429	2-iodophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
430	3-cyanophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
431	4-cyanophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
432	2-nitrophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
433	3-nitrophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
434	4-nitrophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
435	2-trifluoromethylphenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
436	4-trifluoromethylphenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
437	4-trifluoromethoxyphenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
438	2,3-difluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
439	2,4-difluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
440	2,5-difluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
441	2,6-difluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
442	2,4-dichlorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
443	2,6-dichlorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
444	3,4-dichlorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
445	2-chloro-4-nitrophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
446	2-chloro-4-fluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
447	2-chloro-6-fluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
448	4-chloro-2-fluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
449	4-chloro-2-nitrophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
450	2,3,6-trifluorophenyl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
451	pyridin-2-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
452	pyridin-3-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
453	2-fluoropyridin-3-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
454	2-chloropyridin-3-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
455	2-chloropyridin-5-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
456	2-methylthiopyridin-3-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
457	pyrazin-2-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
458	furan-2-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
459	thiophen-2-yl	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
460	2,6-difluorophenyl	2,6-dichloro-4-(trifluoromethylsulfonyl)phenyl
461	phenyl	2-bromo-6-(heptafluoroisopropoxy)-4-methylpyridin-3-yl
462	2-fluorophenyl	2-bromo-6-(heptafluoroisopropoxy)-4-methylpyridin-3-yl

(continued)

Comp. No.	Q_1	Q_2
463	phenyl	2,4-dimethyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
464	phenyl	2-chloro-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethyl ethoxy)pyridin-3-yl
465	phenyl	2-bromo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethyl ethoxy)pyridin-3-yl
466	2-fluorophenyl	2-bromo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethyl ethoxy)pyridin-3-yl
467	phenyl	2-iodo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethyl ethoxy)pyridin-3-yl

[Table 2]

(R₁, R₂ = a hydrogen atom, G₁, G₂ = an oxygen atom)

Comp. No.	Q_1	X_1	X_2	X_3	X_4	Q_2
601	phenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
602	2-methylphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
603	3-methylphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
604	4-methylphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
605	2-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
606	3-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
607	4-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
608	3-cyanophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
609	4-cyanophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
610	2-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
5 611	3-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl) phenyl
10 612	4-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15 613	2-chlorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20 614	4-chlorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25 615	2-bromophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30 616	2-iodophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35 617	2-trifluoromethyl phenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40 618	4-trifluoromethyl phenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45 619	4-trifluoromethoxy phenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50 620	4-(dimethylamino) phenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
55 621	2,3-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	622	2,4-difluorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	623	2,5-difluorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	624	2,6-difluorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	625	2,4-dichlorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	626	2,6-dichlorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	627	3,4-dichlorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	628	2-fluoro-4-nitrophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	629	4-fluoro-2-nitrophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	630	2-chloro-4-fluorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	631	4-chloro-2-fluorophenyl	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl

(continued)

$(R_1, R_2 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
632	2-chloro-6-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
633	2-chloro-4-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
634	4-chloro-2-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
635	2,3,6-trifluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
636	pyridin-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
637	pyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
638	2-fluoropyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
639	2-chloropyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
640	2-chloropyridin-5-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
641	2-methylthiopyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
642	pyrazin-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
643	furan-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
644	furan-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
645	2-tetrahydrofuranyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
646	benzofuran-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
647	thiophen-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
648	2-methyl-5,6-dihydro-4H-pyran-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
649	phenyl	H	Cl	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
650	phenyl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
651	4-nitrophenyl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
652	9-cyanophenyl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
5 653	2-fluorophenyl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
10 654	4-fluorophenyl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
15 655	4-trifluoromethylphenyl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
20 656	2,4-difluorophenyl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
25 657	2-chloropyridin-3-yl	H	F	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
30 658	phenyl	H	H	CF ₃	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
35 659	phenyl	H	H	H	F	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
40 660	phenyl	H	H	H	Cl	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
45 661	phenyl	H	H	H	Br	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
50 662	phenyl	H	H	H	I	2,6-dimethyl-9-(heptafluoro isopropyl)phenyl
55 663	phenyl	F	H	H	F	2,6-dimethyl-9-(heptafluoro isopropyl)phenyl
664	phenyl	H	Br	H	Br	2,6-dimethyl-9-(heptafluoro isopropyl)phenyl
665	phenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
666	2-methylphenyl	F	H	H	H	2,6-dimethyl-9-(nonafluoro-2-butyl)phenyl
667	4-methylphenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
668	2-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
669	3-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
670	4-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
671	2-chlorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
672	4-chlorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
673	2-bromophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
674	2-iodophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
675	3-cyanophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
676	4-cyanophenyl*	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
677	2-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
678	3-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
679	4-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
680	2-trifluoromethylphenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
681	4-trifluoromethylphenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
682	4-trifluoromethoxyphenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
683	2,3-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
684	2,4-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
685	2,5-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
686	2,6-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
687	2,4-dichlorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
688	2,6-dichlorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
689	3,4-dichlorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
690	2-chloro-4-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
691	2-chloro-4-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
692	2-chloro-6-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
693	4-chloro-2-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
694	4-chloro-2-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂	
5	695	2,3,6-trifluorophenyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
10	696	pyridin-2-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
15	697	pyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
20	698	2-Fluoropyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
25	699	2-chloropyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
30	700	2-chloropyridin-5-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
35	701	2-methylthiopyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
40	702	pyrazin-2-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
45	703	furan-2-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
50	704	furan-3-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
55	705	2-tetrahydrofuranyl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	706	benzofuran-2-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	707	thiophen-2-yl	F	H	H	H	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
	708	phenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	709	2-methylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	710	4-methylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	711	2-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	712	3-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	713	4-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	714	2-chlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	715	4-chlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
716	2-bromophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
717	2-iodophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
718	3-cyanophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
719	4-cyanophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
720	2-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
721	3-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
722	4-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
723	2-trifluoromethylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
724	4-trifluoromethylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
725	4-trifluoromethoxyphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
726	2,3-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
727	2,4-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
728	2,5-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
729	2,6-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
730	2,4-dichlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
731	2,6-dichlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
732	3,4-dichlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
733	2-chloro-4-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
734	2-chloro-4-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
735	2-chloro-6-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
736	4-chloro-2-fluorophenyl	F	H	H	H	2,6-dibromo-9-(heptafluoro-n-propylthio)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
5	737 4-chloro-2-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	738 2,3,6-trifluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	739 pyridin-2-yl	F Q	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	740 pyridin-3-yl	F Q	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	741 2-fluoropyridin-3-yl 1	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	742 2-chloropyridin-3-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	743 2-chloropyridin-5-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	744 2-methylthiopyridin-3-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	745 pyrazin-2-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	746 furan-2-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	747 furan-3-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	748 2-tetrahydrofuryl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	749 benzofuran-2-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	750 thiophen-2-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	751 phenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	752 2-methylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	753 4-methylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	754 2-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	755 3-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	756 4-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	757 2-chlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
5	758	4-chlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
10	759	2-bromophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
15	760	2-iodophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20	761	3-cyanophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25	762	4-cyanophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30	763	2-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35	764	3-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40	765	4-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45	766	2-trifluoromethylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50	767	4-trifluoromethylphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55	768	4-trifluoromethoxyphenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	769	2,3-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	770	2,4-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	771	2,5-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	772	2,6-difluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	773	2,4-dichlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	774	2,6-dichlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	775	3,4-dichlorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	776	2-chloro-4-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	777	2-chloro-4-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	778	2-chloro-6-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
5 779	4-chloro-2-fluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
10 780	4-chloro-2-nitrophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
15 781	2,3,6-trifluorophenyl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20 782	pyridin-2-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25 783	pyridin-3-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30 784	2-fluoropyridin-3-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35 785	2-chloropyridin-3-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40 786	2-chloropyridin-5-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45 787	2-methylthiopyridin-3-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50 788	pyrazin-2-yl	F	H	H	HH	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55 789	furan-2-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
790	thiophen-2-yl	F	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
791	phenyl	F	H	H	H	2,6-dimethyl-9-(heptafluoro-n-propylthio)phenyl
792	2-methylphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
793	4-methylphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
794	2-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
795	3-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
796	4-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
797	2-chlorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
798	4-chlorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
799	2-bromophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl

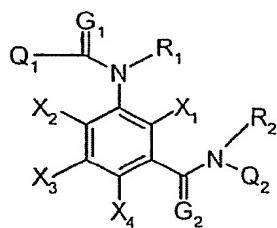
(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂	
5	800	2-iodophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
10	801	3-cyanophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
15	802	4-cyanophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
20	803	2-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
25	804	3-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
30	805	4-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
35	806	2-trifluoromethylphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
40	807	4-trifluoromethylphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
45	808	4-trifluoromethoxyphenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
50	809	2,3-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
55	810	2,4-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	811	2,5-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	812	2,6-difluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	813	2,4-dichlorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	814	2,6-dichlorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	815	3,4-dichlorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	816	2-chloro-4-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	817	2-chloro-4-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	818	2-chloro-6-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	819	4-chloro-2-fluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
	820	4-chloro-2-nitrophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl

(continued)

(R ₁ , R ₂ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	X ₁	X ₂	X ₃	X ₄	Q ₂
821	2,3,6-trifluorophenyl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
822	pyridin-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
823	pyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
824	2-fluoropyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
825	2-chloropyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
826	2-chloropyridin-5-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
827	2-methylthiopyridin-3-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
828	pyrazin-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-2, n-propylthio)phenyl
829	furan-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
830	thiophen-2-yl	F	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
831	phenyl	Cl	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
832	2-fluorophenyl	Cl	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
833	2-chloropyridin-3-yl	Cl	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

[Table 3]

(X₃, X₄ = a hydrogen atom, G₁, G₂ = an oxygen atom)

Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
1001	phenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1002	2-methylphenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1003	4-methylphenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10	1004	2-fluorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15	1005	3-fluorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20	1006	4-fluorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25	1007	2-chlorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30	1008	4-chlorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35	1009	2-bromophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40	1010	2-iodophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45	1011	3-cyanophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50	1012	4-cyanophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
55	1013	2-nitrophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1014	3-nitrophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1015	4-nitrophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1016	2-trifluoromethyl phenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1017	4-trifluoromethyl phenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1018	4-trifluoromethoxy phenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1019	2,3-difluorophenyl	Me	H	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
	1020	2,4-difluorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1021	2,5-difluorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1022	2,6-difluorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1023	2,4-dichlorophenyl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1024	2,6-dichlorophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
10	1025	3,4-dichlorophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
15	1026	2-chloro-4 -nitrophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
20	1027	2-chloro-4 -fluorophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
25	1028	2-chloro-6 -fluorophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
30	1029	4-chloro-2 -fluorophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
35	1030	4-chloro-2 -nitrophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
40	1031	2,3,6-trifluorophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
45	1032	3-(acetylamino)phenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
50	1033	pyridin-2-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
55	1034	pyridin-3-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1035	2-fluoropyridin-3-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1036	2-chloropyridin-3-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1037	2-chloropyridin-5-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1038	2-trifluoromethylpyridin -3-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1039	2-methylthiopyridin-3-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1040	pyrazin-2-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1041	furan-2-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1042	furan-3-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1043	2-tetrahydrofuryl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1044	benzofuran-2-yl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1045	thiophen-2-yl	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10	1046	phenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15	1047	2-methylphenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20	1048	4-methylphenyl	Me	H	H	2-bromo-9-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
25	1049	2-fluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
30	1050	3-fluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
35	1051	4-fluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
40	1052	2-chlorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
45	1053	4-chlorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
50	1054	2-bromophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
55	1055	2-iodophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1056	3-cyanophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1057	4-cyanophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1058	2-nitrophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1059	3-nitrophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1060	4-nitrophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1061	2-trifluoromethylphenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylnitrophenyl)phenyl
	1062	4-trifluoromethylphenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylnitrophenyl)phenyl
	1063	4-trifluoromethoxyphenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylnitrophenyl)phenyl
	1064	2,3-difluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylnitrophenyl)phenyl
	1065	2,4-difluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylnitrophenyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1066	2,5-difluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1067	2,6-difluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
10	1068	2,4-dichlorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1069	2,6-dichlorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
15	1070	3,4-dichlorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1071	2-chloro-4-nitrophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
20	1072	2-chloro-4-fluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1073	2-chloro-6-fluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
25	1074	4-chloro-2-fluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1075	4-chloro-2-nitrophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
30	1076	2,3,6-trifluorophenyl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1077	pyridin-2-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
35	1078	pyridin-3-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1079	2-fluoropyridin-3-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
40	1080	2-chloropyridin-3-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(meth ylsulfonyl)phenyl
	1081	2-chloropyridin-5-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methyl sulfonyl)phenyl
45	1082	2-methylthiopyridin-3-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methyl sulfonyl)phenyl
	1083	pyrazin-2-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methyl sulfonyl)phenyl
50	1084	furan-2-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methyl sulfonyl)phenyl
	1085	thiophen-2-yl	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methyl sulfonyl)phenyl
55	1086	phenyl	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1087	2-methylphenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1088	4-methylphenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1089	2-fluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1090	3-fluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1091	4-fluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1092	2-chlorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1093	4-chlorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1094	2-bromophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1095	2-iodophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1096	3-cyanophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1097	4-cyanophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1098	2-nitrophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1099	3-nitrophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1100	4-nitrophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1101	2-trifluoromethylphenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1102	9-trifluoromethylphenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1103	4-trifluoromethoxyphenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1104	2,3-difluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1105	2,4-difluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1106	2,5-difluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1107	2,6-difluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

$(X_3, X_4 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1108	2,4-dichlorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
10 1109	2,6-dichlorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1110	3,4-dichlorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
15 1111	2-chloro-4-nitrophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1112	2-chloro-4-fluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
20 1113	2-chloro-6-fluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1114	4-chloro-2-fluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25 1115	4-chloro-2-nitrophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1116	2,3,6-trifluorophenyl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
30 1117	pyridin-2-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1118	pyridin-3-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
35 1119	2-fluoropyridin-3-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1120	2-chloropyridin-3-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
40 1121	2-chloropyridin-5-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1122	2-methylthiopyridin -3-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
45 1123	pyrazin-2-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1124	furan-2-yl	Me	H	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
50 1125	2-fluorophenyl	Me	H	H	H	2,6-dimethyl-4-(heptafluoro-n-propylthio)phenyl
1126	phenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55 1127	2-methylphenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1128	4-methylphenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1129	2-fluorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	1130	3-fluorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	1131	4-fluorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	1132	2-chlorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	1133	4-chlorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	1134	2-bromophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	1135	2-iodophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	1136	3-cyanophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
45	1137	4-cyanophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	1138	2-nitrophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	1139	3-nitrophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1140	4-nitrophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1141	2-trifluoromethylphenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1142	4-trifluoromethylphenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1143	4-trifluoromethoxyphenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1144	2,3-difluorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1145	2,4-difluorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1146	2,5-difluorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1147	2,6-difluorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1148	2,4-dichlorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
	1149	2,6-dichlorophenyl	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1150	3,4-dichlorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
10	1151	2-chloro-4-nitrophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
15	1152	2-chloro-4-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
20	1153	2-chloro-6-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
25	1154	4-chloro-2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
30	1155	4-chloro-2-nitrophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
35	1156	2,3,6-trifluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
40	1157	pyridin-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
45	1158	pyridin-3-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio) phenyl
50	1159	2-fluoropyridin-3-yl	Me	H	H	H	phenyl
55	1160	2-chloropyridin-3-yl	Me	H	H	H	phenyl
	1161	2-chloropyridin-5-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1162	2-methylthiopyridin -3-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1163	pyrazin-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1164	furan-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1165	thiophen-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1166	phenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1167	2-methylphenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1168	4-methylphenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1169	2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1170	3-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1171	4-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

$(X_3, X_4 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1172	2-chlorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
10 1173	4-chlorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
15 1174	2-bromophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20 1175	2-iodophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25 1176	3-cyanophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30 1177	4-cyanophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35 1178	2-nitrophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40 1179	3-nitrophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45 1180	4-nitrophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50 1181	2-trifluoromethylphenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55 1182	4-trifluoromethylphenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1183	4-trifluoromethoxyphenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1184	2,3-difluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1185	2,4-difluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1186	2,5-difluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1187	2,6-difluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1188	2,4-dichlorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1189	2,6-dichlorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1190	3,9-dichlorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1191	2-chloro-4-nitrophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1192	2-chloro-4-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1193	2-chloro-6-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
10	1194	4-chloro-2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
15	1195	4-chloro-2-nitrophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20	1196	2,3,6-trifluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25	1197	pyridin-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30	1198	pyridin-3-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35	1199	2-fluoropyridin-3-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40	1200	2-chloropyridin-3-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45	1201	2-chloropyridin-5-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50	1202	2-methylthiopyridin-3-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55	1203	pyrazin-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1204	furan-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1205	thiophen-2-yl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1206	2-fluorophenyl	Et	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1207	pyridin-3-yl	Et	H	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1208	phenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1209	2-methylphenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1210	3-methylphenyl	Me	H	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
	1211	4-methylphenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1212	2-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1213	3-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
1214	4-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1215	2-cyanophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1216	3-cyanophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1217	4-cyanophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1218	2-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1219	3-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1220	4-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1221	2-chlorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1222	4-chlorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1223	2-bromophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1224	2-iodophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1225	2-trifluoromethylphenyl	Me	H	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
1226	4-trifluoromethylphenyl	Me	H	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
1227	4-trifluoromethoxyphenyl	Me	H	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
1228	2,3-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1229	2,4-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1230	2,5-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1231	2,6-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1232	2,4-dichlorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1233	2,6-dichlorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
1234	3,4-dichlorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1235	2-fluoro-4-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
10 1236	4-fluoro-2-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1237	2-chloro-4-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1238	4-chloro-2-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1239	2-chloro-6-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1240	2-chloro-4-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
20 1241	4-chloro-2-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1242	2,3,6-trifluorophenyl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
25 1243	pyridin-2-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1244	pyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
30 1245	2-chloropyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1246	2-fluoropyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
35 1247	2-chloropyridin-5-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1248	2-methylthiopyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
40 1249	pyrazin-2-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1250	furan-2-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
45 1251	furan-3-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1252	2-tetrahydrofuryl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
50 1253	benzofuran-2-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1254	thiophen-2-yl	Me	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
55 1255	phenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1256	2-methylphenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
10	1257	3-methylphenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
15	1258	9-methylphenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
20	1259	2-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
25	1260	3-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
30	1261	4-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
35	1262	2-cyanophenyl	Me	H	F	H	2,6-dimethyl-9-(nonafluoro-2-butyl) phenyl
40	1263	3-cyanophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
45	1264	4-cyanophenyl	Me	H	F	H	2,6-dimethyl-9-(nonafluoro-2-butyl) phenyl
50	1265	2-fluorophenyl	Me	H	F	H	2,6-dimethyl-9-(nonafluoro-2-butyl) phenyl
55	1266	3-fluorophenyl	Me	H	F	H	2,6-dimethyl-9-(nonafluoro-2-butyl) phenyl
	1267	4-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1268	2-chlorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1269	4-chlorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1270	2-bromophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1271	2-iodophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1272	2-trifluoromethylphenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1273	4-trifluoromethylphenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1274	4-trifluoromethoxyphenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1275	2,3-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1276	2,4-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl

(continued)

$(X_3, X_4 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1277	2,5-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
10	1278	2,6-difluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
15	1279	2,4-dichlorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
20	1280	2,6-dichlorophenyl	Me	H H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
25	1281	3,4-dichlorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
30	1282	2-fluoro-4-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
35	1283	4-fluoro-2-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
40	1284	2-chloro-4-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
45	1285	4-chloro-2-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
50	1286	2-chloro-6-fluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
55	1287	2-chloro-4-nitrophenyl	Me	H	F	H	2,6-dimethyl-9-(nonafluoro-2-butyl) phenyl
	1288	4-chloro-2-nitrophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1289	2,3,6-trifluorophenyl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1290	pyridin-2-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1291	pyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1292	2-fluoropyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1293	2-chloropyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1294	2-chloropyridin-5-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1295	2-methylthiopyridin-3-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1296	pyrazin-2-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
	1297	furan-2-yl	Me	H	F	H	2,6-dimethyl-9-(nonafluoro-2-butyl) phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
1298	furan-3-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
1299	2-tetrahydrofuryl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
1300	benzofuran-2-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
1301	thiophen-2-yl	Me	H	F	H	2,6-dimethyl-4-(nonafluoro-2-butyl) phenyl
1302	phenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1303	2-methylphenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1304	4-methylphenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1305	2-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1306	3-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) (methylsulfonyl) phenyl -6-(methylsulfonyl)phenyl
1307	4-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1308	2-chlorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1309	9-chlorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1310	2-bromophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1311	2-iodophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1312	3-cyanophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1313	4-cyanophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1314	2-nitrophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1315	3-nitrophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1316	4-nitrophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1317	2-trifluoromethylphenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl
1318	4-trifluoromethylphenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl) -6-(methylsulfonyl)phenyl

(continued)

$(X_3, X_4 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1319	4-trifluoromethoxyphenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10 1320	2,3-difluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1321	2,4-difluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1322	2,5-difluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1323	2,6-difluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1324	2,4-dichlorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20 1325	2,6-dichlorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1326	3,4-dichlorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
25 1327	2-chloro-4-nitrophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1328	2-chloro-4-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
30 1329	2-chloro-6-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1330	4-chloro-2-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
35 1331	4-chloro-2-nitrophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1332	2,3,6-trifluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
40 1333	pyridin-2-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1334	pyridin-3-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
45 1335	2-fluoropyridin-3-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1336	2-chloropyridin-3-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
50 1337	2-chloropyridin-5-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
1338	2-methylthiopyridin-3-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl -6-(methylsulfonyl)phenyl
55 1339	pyrazin-2-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1340	furan-2-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10 1341	thiophen-2-yl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15 1342	phenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
20 1343	2-methylphenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25 1344	4-methylphenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
30 1345	2-fluorophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
35 1346	3-fluorophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
40 1347	4-fluorophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
45 1348	2-chlorophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
50 1349	4-chlorophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
55 1350	2-bromophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1351	2-iodophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1352	3-cyanophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1353	4-cyanophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1354	2-nitrophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1355	3-nitrophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1356	4-nitrophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1357	2-trifluoromethylphenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1358	4-trifluoromethylphenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1359	4-trifluoromethoxyphenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
1360	2,3-difluorophenyl	Me	H	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1361	2,4-difluorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
10	1362	2,5-difluorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
15	1363	2,6-difluorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
20	1364	2,4-dichlorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25	1365	2,6-dichlorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
30	1366	3,4-dichlorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
35	1367	2-chloro-4-nitrophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
40	1368	2-chloro-4-fluorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
45	1369	2-chloro-6-fluorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
50	1370	4-chloro-2-fluorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
55	1371	4-chloro-2-nitrophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1372	2,3,6-trifluorophenyl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1373	pyridin-2-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1374	pyridin-3-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1375	2-fluoropyridin-3-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1376	2-chloropyridin-3-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1377	2-chloropyridin-5-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1378	2-methylthiopyridin-3-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1379	pyrazin-2-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1380	furan-2-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1381	thiophen-2-yl	Me	H	F	H
						2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1382 phenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	1383 2-methylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	1384 4-methylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	1385 2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	1386 3-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	1387 4-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	1388 2-chlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	1389 4-chlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	1390 2-bromophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	1391 2-iodophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	1392 3-cyanophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1393 4-cyanophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1394 2-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1395 3-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1396 4-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1397 2-trifluoromethylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1398 4-trifluoromethylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1399 4-trifluoromethoxyphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1400 2,3-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1401 2,4-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1402 2,5-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1403	2,6-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	1404	2,4-dichlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	1405	2,6-dichlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	1406	3,4-dichlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	1407	2-chloro-4-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	1408	2-chloro-4-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	1409	2-chloro-6-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	1410	4-chloro-2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	1411	4-chloro-2-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	1412	2,3,6-trifluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	1413	pyridin-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1414	pyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1415	2-fluoropyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1416	2-chloropyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1417	2-chloropyridin-5-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1418	2-methylthiopyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1419	pyrazin-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1420	furan-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro n-propylthio)phenyl
	1421	thiophen-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1422	phenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
	1423	2-methylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1424	4-methylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
10 1425	2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1426	3-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl) phenyl
1427	4-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1428	2-chlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1429	4-chlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
20 1430	2-bromophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1431	2-iodophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
25 1432	3-cyanophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1433	4-cyanophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
30 1434	2-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1435	3-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
35 1436	4-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
40 1437	2-trifluoromethylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1438	4-trifluoromethylphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
45 1439	4-trifluoromethoxyphenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1440	2,3-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
50 1441	2,4-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1442	2,5-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
55 1443	2,6-difluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
1444	2,4-dichlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1445	2,6-dichlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
10	1446	3,4-dichlorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
15	1447	2-chloro-4-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
20	1448	2-chloro-4-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
25	1449	2-chloro-6-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
30	1450	4-chloro-2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
35	1451	4-chloro-2-nitrophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
40	1452	2,3,6-trifluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl) phenyl
45	1453	pyridin-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
50	1454	pyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
55	1455	2-fluoropyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
	1456	2-chloropyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
	1457	2-chloropyridin-5-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
	1458	2-methylthiopyridin-3-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
	1459	pyrazin-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
	1460	furan-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro -n-propylsulfinyl)phenyl
	1461	thiophen-2-yl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1462	phenyl	Et	H	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1463	phenyl	Me	H	H	F	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1464	4-nitrophenyl	Me	H	H	F	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1465	4-cyanophenyl	Me	H	H	F	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl

(continued)

$(X_3, X_4 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1466 phenyl	Me	H	H	F	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10	1467 4-nitrophenyl	Me	H	H	F	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15	1468 4-cyanophenyl	Me	H	H	F	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20	1469 phenyl	Me	H	H	F	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25	1470 4-nitrophenyl	Me	H	H	F	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
30	1471 4-cyanophenyl	Me	H	H	F	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
35	1472 phenyl	Me	H	H	F	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	1473 4-nitrophenyl	Me	H	H	F	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	1474 4-cyanophenyl	Me	H	H	F	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	1475 phenyl	Me	H	H	F	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
55	1476 4-nitrophenyl	Me	H	H	F	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
	1477 4-cyanophenyl	Me	H	H	F	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
	1478 phenyl	H	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1479 phenyl	H	Me	H	H	2-bromo-4-(heptafluoro isopropyl)-6-methylphenyl
	1480 phenyl	H	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1481 2-fluorophenyl	H	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1482 phenyl	H	Et	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1483 phenyl	H	i-Pr	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1484 phenyl	H	acetyl	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1485 phenyl	H	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1486 2-fluorophenyl	H	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1487	phenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1488	2-methylphenyl	Me	Me	H	H	2,6-dimethyl-9-(heptafluoro isopropyl)phenyl
10	1489	4-methylphenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1490	2-fluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
15	1491	3-fluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1492	4-fluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
20	1493	2-chlorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1494	4-chlorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
25	1495	2-bromophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1496	2-iodophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
30	1497	3-cyanophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1498	4-cyanophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
35	1499	2-nitrophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1500	3-nitrophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
40	1501	4-nitrophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1502	2-trifluoromethylphenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
45	1503	4-trifluoromethylphenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1504	4-trifluoromethoxyphenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
50	1505	2,3-difluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
	1506	2,4-difluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
55	1507	2,5-difluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1508	2,6-difluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10	1509	2,4-dichlorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15	1510	2,6-dichlorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20	1511	3,4-dichlorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25	1512	2-chloro-4-nitrophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30	1513	2-chloro-4-fluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35	1514	2-chloro-6-fluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40	1515	4-chloro-2-fluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45	1516	4-chloro-2-nitrophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50	1517	2,3,6-trifluorophenyl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
55	1518	pyridin-2-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1519	pyridin-3-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1520	2-fluoropyridin-3-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1521	2-chloropyridin-3-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1522	2-chloropyridin-5-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1523	2-methylthiopyridin-3-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1524	pyrazin-2-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1525	furan-2-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1526	thiophen-2-yl	Me	Me	H	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1527	phenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1528	2-methylphenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1529	4-methylphenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10	1530	2-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15	1531	3-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20	1532	4-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
25	1533	2-chlorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
30	1534	4-chlorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
35	1535	2-bromophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
40	1536	2-iodophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
45	1537	3-cyanophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
50	1538	4-cyanophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
55	1539	2-nitrophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1540	3-nitrophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1541	4-nitrophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1542	2-trifluoromethylphenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1543	4-trifluoromethylphenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1544	4-trifluoromethoxyphenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1545	2,3-difluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1546	2,4-difluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1547	2,5-difluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1548	2,6-difluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1549	2,4-dichlorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1550	2,6-dichlorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10	1551	3,4-dichlorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15	1552	2-chloro-4-nitrophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20	1553	2-chloro-4-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
25	1554	2-chloro-6-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
30	1555	4-chloro-2-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
35	1556	4-chloro-2-nitrophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
40	1557	2,3,6-trifluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
45	1558	pyridin-2-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
50	1559	pyridin-3-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
55	1560	2-fluoropyridin-3-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1561	2-chloropyridin-3-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1562	2-chloropyridin-5-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1563	2-methylthiopyridin-3-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1564	pyrazin-2-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1565	furan-2-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1566	thiophen-2-yl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1567	phenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1568	2-methylphenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1569	4-methylphenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1570	2-fluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1571	3-fluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
10	1572	4-fluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
15	1573	2-chlorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
20	1574	4-chlorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25	1575	2-bromophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
30	1576	2-iodophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
35	1577	3-cyanophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
40	1578	4-cyanophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
45	1579	2-nitrophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
50	1580	3-nitrophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
55	1581	4-nitrophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1582	2-trifluoromethylphenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1583	4-trifluoromethylphenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1584	4-trifluoromethoxyphenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1585	2,3-difluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1586	2,4-difluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1587	2,5-difluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1588	2,6-difluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1589	2,9-dichlorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1590	2,6-dichlorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1591	3,4-dichlorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1592	2-chloro-4-nitrophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
10	1593	2-chloro-4-fluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
15	1594	2-chloro-6-fluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
20	1595	4-chloro-2-fluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25	1596	4-chloro-2-nitrophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
30	1597	2,3,6-trifluorophenyl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
35	1598	pyridin-2-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
40	1599	pyridin-3-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
45	1600	2-fluoropyridin-3-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
50	1601	2-chloropyridin-3-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
55	1602	2-chloropyridin-5-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1603	2-methylthiopyridin-3-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1604	pyrazin-2-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1605	furan-2-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1606	thiophen-2-yl	Me	Me	H	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1607	phenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1608	2-methylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1609	3-methylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1610	4-methylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1611	2-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1612	3-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1613	4-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	1614	2-cyanophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	1615	3-cyanophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	1616	4-cyanophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	1617	2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	1618	3-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	1619	4-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	1620	2-chlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	1621	4-chlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	1622	2-bromophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	1623	2-iodophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1624	2-trifluoromethylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1625	4-trifluoromethylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1626	4-trifluoromethoxyphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1627	2,3-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1628	2,4-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1629	2,5-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1630	2,6-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1631	2,4-dichlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1632	2,6-dichlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1633	3,9-dichlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1634	2-fluoro-4-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1635	4-fluoro-2-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	1636	2-chloro-4-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1637	4-chloro-2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	1638	2-chloro-6-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1639	2-chloro-4-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	1640	-chloro- 2- nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1641	2,3,6-trifluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoron-propylthio)phenyl
25	1642	pyridin-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1643	pyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	1644	2-fluoropyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1645	2-chloropyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	1646	2-chloropyridin-5-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1647	2-methylthiopyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	1648	pyrazin-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1649	furan-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	1650	furan-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1651	2-tetrahydrofuranyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	1652	benzofuran-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1653	thiophen-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	1654	3,4-dinitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1655	3-methoxy-4-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10 1656	2,3,4-trifluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1657	phenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1658	2-methylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1659	4-methylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1660	2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20 1661	3-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1662	4-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25 1663	2-chlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1664	4-chlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30 1665	2-bromophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1666	2-iodophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35 1667	3-cyanophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1668	4-cyanophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40 1669	2-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1670	3-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45 1671	4-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1672	2-trifluoromethylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50 1673	4-trifluoromethylphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1674	4-trifluoromethoxyphenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55 1675	2,3-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1676	2,4-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
10	1677	2,5-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
15	1678	2,6-difluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20	1679	2,4-dichlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25	1680	2,6-dichlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30	1681	3,4-dichlorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35	1682	2-chloro-4-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40	1683	2-chloro-4-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45	1684	2-chloro-6-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50	1685	4-chloro-2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55	1686	4-chloro-2-nitrophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1687	2,3,6-trifluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1688	pyridin-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1689	pyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1690	2-fluoropyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1691	2-chloropyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1692	2-chloropyridin-5-yl	Me	Me	H	H	2,6-dibromo-9-(heptafluoro-n-propylsulfinyl)phenyl
	1693	2-methylthiopyridin-3-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1694	pyrazin-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1695	furan-2-yl	Me	Me	H	H	2,6-dibromo-9-(heptafluoro-n-propylsulfinyl)phenyl
	1696	thiophen-2-yl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1697	phenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
10 1698	2-methylphenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1699	4-methylphenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1700	2-fluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1701	3-fluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1702	4-fluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
20 1703	2-chlorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1704	4-chlorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
25 1705	2-bromophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1706	2-iodophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
30 1707	3-cyanophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1708	4-cyanophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
35 1709	2-nitrophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1710	3-nitrophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
40 1711	4-nitrophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1712	2-trifluoromethylphenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
45 1713	4-trifluoromethylphenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1714	4-trifluoromethoxyphenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
50 1715	2,3-difluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
1716	2,4-difluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl
55 1717	2,5-difluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoro isopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1718	2,6-difluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
10	1719	2,4-dichlorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
15	1720	2,6-dichlorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
20	1721	3,4-dichlorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
25	1722	2-chloro-4-nitrophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
30	1723	2-chloro-4-fluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
35	1724	2-chloro-6-fluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
40	1725	4-chloro-2-fluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
45	1726	4-chloro-2-nitrophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
50	1727	2,3,6-trifluorophenyl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
55	1728	pyridin-2-yl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1729	pyridin-3-yl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1730	2-fluoropyridin-3-yl	Me	Me	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
	1731	2-chloropyridin-3-yl	Me	Me	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
	1732	2-chloropyridin-5-yl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1733	2-methylthiopyridin-3-yl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1734	pyrazin-2-yl	Me	Me	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
	1735	furan-2-yl	Me	Me	F	H	2,6-dimethyl-4-(heptafluoroisopropyl)phenyl
	1736	thiophen-2-yl	Me	Me	F	H	2,6-dimethyl-9-(heptafluoroisopropyl)phenyl
	1737	phenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1738	2-methylphenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl

(continued)

$(X_3, X_4 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1739	4-methylphenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10	1740	2-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15	1741	3-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20	1742	4-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
25	1743	2-chlorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
30	1744	4-chlorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
35	1745	2-bromophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
40	1746	2-iodophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
45	1747	3-cyanophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
50	1748	4-cyanophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
55	1749	2-nitrophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1750	3-nitrophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1751	4-nitrophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1752	2-trifluoromethylphenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1753	4-trifluoromethylphenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1754	4-trifluoromethoxyphenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1755	2,3-difluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1756	2,4-difluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1757	2,5-difluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1758	2,6-difluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1759	2,4-dichlorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1760	2,6-dichlorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
10	1761	3,4-dichlorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
15	1762	2-chloro-4-nitrophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
20	1763	2-chloro-4-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
25	1764	2-chloro-6-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
30	1765	4-chloro-2-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
35	1766	4-chloro-2-nitrophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
40	1767	2,3,6-trifluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
45	1768	pyridin-2-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
50	1769	pyridin-3-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
55	1770	2-fluoropyridin-3-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1771	2-chloropyridin-3-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1772	2-chloropyridin-5-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1773	2-methylthiopyridin-3-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1774	pyrazin-2-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1775	furan-2-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1776	thiophen-2-yl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
	1777	phenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1778	2-methylphenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1779	4-methylphenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1780	2-fluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1781	3-fluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1782	4-fluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
10	1783	2-chlorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
	1784	4-chlorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
15	1785	2-bromophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1786	2-iodophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
20	1787	3-cyanophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1788	4-cyanophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25	1789	2-nitrophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
	1790	3-nitrophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
30	1791	4-nitrophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1792	2-trifluoromethylphenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
35	1793	4-trifluoromethylphenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
	1794	4-trifluoromethoxyphenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
40	1795	2,3-difluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1796	2,4-difluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
45	1797	2,5-difluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
	1798	2,6-difluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl) phenyl
50	1799	2,4-dichlorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1800	2,6-dichlorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
55	1801	3,4-dichlorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1802	2-chloro-4-nitrophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
10	1803	2-chloro-4-fluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
15	1804	2-chloro-6-fluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
20	1805	4-chloro-2-fluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
25	1806	4-chloro-2-nitrophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
30	1807	2,3,6-trifluorophenyl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
35	1808	pyridin-2-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
40	1809	pyridin-3-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
45	1810	2-fluoropyridin-3-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
50	1811	2-chloropyridin-3-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
55	1812	2-chloropyridin-5-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1813	2-methylthiopyridin-3-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1814	pyrazin-2-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1815	furan-2-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1816	thiophen-2-yl	Me	Me	F	H	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
	1817	phenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1818	2-methylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1819	4-methylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1820	2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1821	3-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1822	4-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5 1823	2-chlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10 1824	4-chlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1825	2-bromophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15 1826	2-iodophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1827	3-cyanophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20 1828	4-cyanophenyl	Me	Me	F	H	2,6-dibromo-9-(heptafluoro-n-propylthio)phenyl
1829	2-nitrophenyl	Me	Me	F	H	2,6-dibromo-9-(heptafluoro-n-propylthio)phenyl
25 1830	3-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1831	4-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30 1832	2-trifluoromethylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1833	4-trifluoromethylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35 1834	4-trifluoromethoxyphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1835	2,3-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40 1836	2,4-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1837	2,5-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45 1838	2,6-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1839	2,4-dichlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50 1840	2,6-dichlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1841	3,4-dichlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
1842	2-chloro-4-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55 1843	2-chloro-4-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

$(X_3, X_4 = \text{a hydrogen atom}, G_1, G_2 = \text{an oxygen atom})$							
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂	
5	1844	2-chloro-6-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	1845	4-chloro-2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	1846	4-chloro-2-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	1847	2,3,6-trifluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	1848	pyridin-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	1849	pyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	1850	2-fluoropyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	1851	2-chloropyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	1852	2-chloropyridin-5-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	1853	2-methylthiopyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	1854	pyrazin-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1855	furan-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1856	thiophen-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	1857	phenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1858	2-methylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1859	4-methylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1860	2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1861	3-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1862	4-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1863	2-chlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1864	4-chlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1865	2-bromophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
10	1866	2-iodophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
15	1867	3-cyanophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
20	1868	4-cyanophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
25	1869	2-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
30	1870	3-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
35	1871	4-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
40	1872	2-trifluoromethylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
45	1873	4-trifluoromethylphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
50	1874	4-trifluoromethoxyphenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
55	1875	2,3-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1876	2,4-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1877	2,5-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1878	2,6-difluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1879	2,4-dichlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1880	2,6-dichlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1881	3,4-dichlorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1882	2-chloro-4-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1883	2-chloro-4-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1884	2-chloro-6-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
	1885	4-chloro-2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
1886	4-chloro-2-nitrophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1887	2,3,6-trifluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1888	pyridin-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1889	pyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1890	2-fluoropyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1891	2-chloropyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1892	2-chloropyridin-5-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1893	2-methylthiopyridin-3-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1894	pyrazin-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1895	furan-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1896	thiophen-2-yl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
1897	2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(pentafluoroethyl)phenyl
1898	2-fluorophenyl	Me	H	H	H	2-bromo-4-heptafluoro isopropyl)-6-methylphenyl
1899	2-fluorophenyl	Me	H	H	H	2-ethyl-4-(heptafluoro isopropyl)-6-methylphenyl
1900	2-fluorophenyl	Me	H	H	H	4-(heptafluoroisopropyl)-2-iodo-6-methylphenyl
1901	2-fluorophenyl	Me	H	H	H	2-chloro-6-ethyl-4-(heptafluoro isopropyl) phenyl
1902	2-fluorophenyl	Me	H	H	H	2-bromo-6-ethyl-4-(heptafluoro isopropyl)phenyl
1903	2-fluorophenyl	Me	H	H	H	2-ethyl-4-(heptafluoro isopropyl)-6-iodophenyl
1904	2-fluorophenyl	Me	H	H	H	4-(heptafluoroisopropyl)-2-isopropyl-6-methylphenyl
1905	2-fluorophenyl	Me	H	H	H	2-bromo-4-(heptafluoro isopropyl)-6-n-propylphenyl
1906	2-fluorophenyl	Me	H	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(trifluoromethylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1907	2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(trifluoro methylthio)phenyl
10	1908	2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(pentafluoro phenyl ethylthio)phenyl
15	1909	2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(nonafluoro-n-butylthio)phenyl
20	1910	2-fluorophenyl	Me	H	H	H	2,6-dichloro-4-(heptafluoro isopropylsulfonyl)phenyl
25	1911	2-fluorophenyl	Me	H	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
30	1912	2-fluorophenyl	Me	H	H	H	2-bromo-6-(heptafluoroisopropoxy)-4-methylpyridin-3-yl
35	1913	2-fluorophenyl	Me	H	H	H	2,4-dimethyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
40	1914	2-fluorophenyl	Me	H	H	H	2-chloro-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
45	1915	2-fluorophenyl	Me	H	H	H	2-bromo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
50	1916	2-fluorophenyl	Me	H	H	H	2-iodo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
55	1917	2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(pentafluoroethyl)phenyl
	1918	2-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-methylphenyl
	1919	2-fluorophenyl	Me	H	F	H	2-ethyl-4-(heptafluoroisopropyl)-6-methylphenyl
	1920	2-fluorophenyl	Me	H	F	H	4-(heptafluoroisopropyl)-2-iodo-6-methylphenyl
	1921	2-fluorophenyl	Me	H	F	H	2-chloro-6-ethyl-4-(heptafluoroisopropyl)phenyl
	1922	2-fluorophenyl	Me	H	F	H	2-bromo-6-ethyl-4-(heptafluoroisopropyl)phenyl
	1923	2-fluorophenyl	Me	H	F	H	2-ethyl-4-(heptafluoroisopropyl)-6-iodophenyl
	1924	2-fluorophenyl	Me	H	F	H	4-(heptafluoroisopropyl)-2-isopropyl-6-methylphenyl
	1925	2-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-n-propylphenyl
	1926	2-fluorophenyl	Me	H	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(trifluoromethylthio)phenyl
	1927	2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(trifluoromethylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1928	2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(pentafluoroethylthio)phenyl
10	1929	2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(nonafluoro-n-butylthio)phenyl
15	1930	2-fluorophenyl	Me	H	F	H	2,6-dichloro-4-(heptafluoroisopropylsulfonyl)phenyl
20	1931	2-fluorophenyl	Me	H	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
25	1932	2-fluorophenyl	Me	H	F	H	2-bromo-6-(heptafluoroisopropoxy)-4-methylpyridin-3-yl
30	1933	2-fluorophenyl	Me	H	F	H	2,4-dimethyl-6-(2,2,2-trifluoro-1-trifluoromethylmethylethoxy)pyridin-3-yl
35	1934	2-fluorophenyl	Me	H	F	H	2-chloro-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylmethylethoxy)pyridin-3-yl
40	1935	2-fluorophenyl	Me	H	F	H	2-bromo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylmethylethoxy)pyridin-3-yl
45	1936	2-fluorophenyl	Me	H	F	H	2-iodo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylmethylethoxy)pyridin-3-yl
50	1937	2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(pentafluoroethyl)phenyl
55	1938	2-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-methylphenyl
	1939	2-fluorophenyl	Me	Me	H	H	2-ethyl-4-(heptafluoroisopropyl)-6-methylphenyl
	1940	2-fluorophenyl	Me	Me	H	H	4-(heptafluoroisopropyl)-2-iodo-6-methylphenyl
	1941	2-fluorophenyl	Me	Me	H	H	2-chloro-6-ethyl-4-(heptafluoroisopropyl)phenyl
	1942	2-fluorophenyl	Me	Me	H	H	2-bromo-6-ethyl-4-(heptafluoroisopropyl)phenyl
	1943	2-fluorophenyl	Me	Me	H	H	2-ethyl-4-(heptafluoroisopropyl)-6-iodophenyl
	1944	2-fluorophenyl	Me	Me	H	H	4-(heptafluoroisopropyl)-2-isopropyl-6-methylphenyl
	1945	2-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-n-propylphenyl
	1946	2-fluorophenyl	Me	Me	H	H	2-bromo-4-(heptafluoroisopropyl)-6-(trifluoromethylthio)phenyl
	1947	2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(trifluoromethylthio)phenyl
	1948	2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(pentafluoroethylthio)phenyl

(continued)

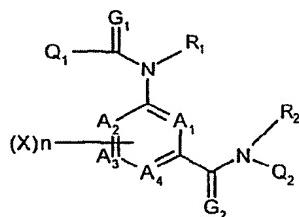
(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)							
	Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
5	1949	2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(nonafluoro-n-butylthio)phenyl
10	1950	2-fluorophenyl	Me	Me	H	H	2,6-dichloro-4-(heptafluoroisopropylsulfonyl)phenyl
15	1951	2-fluorophenyl	Me	Me	H	H	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
20	1952	2-fluorophenyl	Me	Me	H	H	2-bromo-6-(heptafluoroisopropoxy)-4-methylpyridin-3-yl
25	1953	2-fluorophenyl	Me	Me	H	H	2,4-dimethyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
30	1954	2-fluorophenyl	Me	Me	H	H	2-chloro-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
35	1955	2-fluorophenyl	Me	Me	H	H	2-bromo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
40	1956	2-fluorophenyl	Me	Me	H	H	2-iodo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl
45	1957	2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(pentafluoroethyl)phenyl
50	1958	2-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-methylphenyl
55	1959	2-fluorophenyl	Me	Me	F	H	2-ethyl-4-(heptafluoroisopropyl)-6-methylphenyl
	1960	2-fluorophenyl	Me	Me	F	H	4-(heptafluoroisopropyl)-2-iodo-6-methylphenyl
	1961	2-fluorophenyl	Me	Me	F	H	2-chloro-6-ethyl-4-(heptafluoroisopropyl)phenyl
	1962	2-fluorophenyl	Me	Me	F	H	2-bromo-6-ethyl-4-(heptafluoroisopropyl)phenyl
	1963	2-fluorophenyl	Me	Me	F	H	2-ethyl-4-(heptafluoroisopropyl)-6-iodophenyl
	1964	2-fluorophenyl	Me	Me	F	H	4-(heptafluoroisopropyl)-2-isopropyl-6-methylphenyl
	1965	2-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-n-propylphenyl
	1966	2-fluorophenyl	Me	Me	F	H	2-bromo-4-(heptafluoroisopropyl)-6-(trifluoromethylthio)phenyl
	1967	2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(trifluoromethylthio)phenyl
	1968	2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(pentafluoroethylthio)phenyl
	1969	2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(nonafluoro-n-butylthio)phenyl

(continued)

(X ₃ , X ₄ = a hydrogen atom, G ₁ , G ₂ = an oxygen atom)						
Comp. No.	Q ₁	R ₁	R ₂	X ₁	X ₂	Q ₂
1970	2-fluorophenyl	Me	Me	F	H	2,6-dichloro-4-(heptafluoroisopropylsulfonyl)phenyl
1971	2-fluorophenyl	Me	Me	F	H	2,6-dibromo-4-(heptafluoro-n-propylsulfonyl)phenyl
1972	2-fluorophenyl	Me	Me	F	H	2-bromo-6-(heptafluoroisopropoxy)-4-methylpyridin-3-yl
1973	2-fluorophenyl	Me	Me	F	H	2,4-dimethyl-6-(2,2,2-trifluoro-1-trifluoromethylmethoxy)pyridin-3-yl
1974	2-fluorophenyl	Me	Me	F	H	2-chloro-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylmethoxy)pyridin-3-yl
1975	2-fluorophenyl	Me	Me	F	H	2-bromo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylmethoxy)pyridin-3-yl
1976	2-fluorophenyl	Me	Me	F	H	2-iodo-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylmethoxy)pyridin-3-yl

25

[Table 4]



30

(X, R₂ = a hydrogen atom, A₃, A₄ = a carbon atom, G₁, G₂ = an oxygen atom, n = 0)

Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂
2001	phenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
2002	2-methylphenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
2003	4-methylphenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
2004	2-fluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
2005	3-fluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
2006	4-fluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
2007	2-chlorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl

(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)						
Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂	
5	2008	4-chlorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
10	2009	2-bromophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
15	2010	2-iodophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
20	2011	3-cyanophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
25	2012	4-cyanophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
30	2013	2-nitrophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
35	2014	3-nitrophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
40	2015	4-nitrophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
45	2016	2-trifluoromethylphenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
50	2017	4-trifluoromethylphenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
55	2018	4-trifluoromethoxyphenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2019	2,3-difluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2020	2,4-difluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2021	2,5-difluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2022	2,6-difluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2023	2,4-dichlorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2024	2,6-dichlorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2025	3,4-dichlorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2026	2-chloro-4-nitrophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2027	2-chloro-4-fluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2028	2-chloro-6-fluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl

(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)						
Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂	
5	2029	4-chloro-2-fluorophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
10	2030	4-chloro-2-nitrophenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
15	2031	2,3,6-trifluoro phenyl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
20	2032	pyridin-2-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
25	2033	pyridin-3-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
30	2034	pyridin-4-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
35	2035	2-fluoropyridin-3-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
40	2036	2-chloropyridin-3-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
45	2037	2-chloropyridin-5-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
50	2038	2-methylthiopyridin-3-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
55	2039	pyrazin-2-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2040	furan-2-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2041	thiophen-2-yl	H	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2042	phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2043	2-methylphenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2044	4-methylphenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2045	2-fluorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2046	3-fluorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2047	4-fluorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2048	2-chlorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2049	4-chlorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)						
	Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂
5	2050	2-bromophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	2051	2-iodophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	2052	3-cyanophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	2053	4-cyanophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	2054	2-nitrophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	2055	3-nitrophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	2056	4-nitrophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	2057	2-trifluoromethyl phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	2058	4-trifluoromethyl phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	2059	4-trifluoromethoxy phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2060	2,3-difluorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2061	2,4-difluorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2062	2,5-difluorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2063	2,6-difluorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2064	2,4-dichlorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2065	2,6-dichlorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2066	3,4-dichlorophenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2067	2-chloro-4-nitro phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2068	2-chloro-4-fluoro phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2069	2-chloro-6-fluoro phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2070	4-chloro-2-fluoro phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)						
Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂	
5	2071	4-chloro-2-nitro phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	2072	2,3,6-trifluoro phenyl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	2073	pyridin-2-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	2074	pyridin-3-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	2075	2-fluoropyridin-3-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	2076	2-chloropyridin-3-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	2077	2-chloropyridin-5-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	2078	2-methylthiopyridin-3-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	2079	pyrazin-2-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	2080	furan-2-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2081	thiophen-2-yl	H	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2082	phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2083	2-methylphenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2084	4-methylphenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2085	2-fluorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2086	3-fluorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2087	4-fluorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2088	2-chlorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2089	4-chlorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2090	2-bromophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2091	2-iodophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl

(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)						
	Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂
5	2092	3-cyanophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2093	4-cyanophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
10	2094	2-nitrophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2095	3-nitrophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
15	2096	4-nitrophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2097	2-trifluoromethyl phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
20	2098	4-trifluoromethyl phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2099	4-trifluoromethoxy phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
25	2100	2,3-difluorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2101	2,4-difluorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
30	2102	2,5-difluorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2103	2,6-difluorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
35	2104	2,4-dichlorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2105	2,6-dichlorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
40	2106	3,4-dichlorophenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2107	2-chloro-4-nitro phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
45	2108	2-chloro-4-fluoro phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2109	2-chloro-6-fluoro phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
50	2110	4-chloro-2-fluoro phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
	2111	4-chloro-2-nitro phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
55	2112	2,3,6-trifluoro phenyl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl

(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)						
Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂	
5	2113	pyridin-2-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
10	2114	pyridin-3-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
15	2115	2-fluoropyridin-3-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
20	2116	2-chloropyridin-3-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
25	2117	2-chloropyridin-5-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
30	2118	2-methylthiopyridin-3-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
35	2119	pyrazin-2-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
40	2120	furan-2-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
45	2121	thiophen-2-yl	Me	N	C	2,6-dimethyl-4-heptafluoroisopropylphenyl
50	2122	phenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2123	2-methylphenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2124	4-methylphenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2125	2-fluorophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2126	3-fluorophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2127	4-fluorophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2128	2-chlorophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2129	4-chlorophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2130	2-bromophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2131	2-iodophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2132	3-cyanophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2133	4-cyanophenyl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

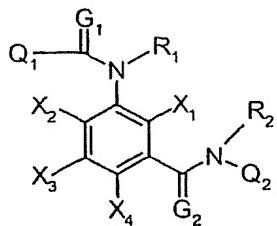
(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)					
Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂
5	2134	2-nitrophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	2135	3-nitrophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	2136	4-nitrophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	2137	2-trifluoromethyl phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	2138	4-trifluoromethyl phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	2139	4-trifluoromethoxy phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	2140	2,3-difluorophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	2141	2,4-difluorophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
45	2142	2,5-difluorophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
50	2143	2,6-difluorophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2144	2,4-dichlorophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2145	2,6-dichlorophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2146	3,4-dichlorophenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2147	2-chloro-4-nitro phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2148	2-chloro-4-fluoro phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2149	2-chloro-6-fluoro phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2150	4-chloro-2-fluoro phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2151	4-chloro-2-nitro phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2152	2,3,6-trifluoro phenyl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2153	pyridin-2-yl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
55	2154	pyridin-3-yl	Me	N	C
					2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

(continued)

(X, R ₂ = a hydrogen atom, A ₃ , A ₄ = a carbon atom, G ₁ , G ₂ = an oxygen atom, n = 0)						
Comp. No.	Q ₁	R ₁	A ₁	A ₂	Q ₂	
5	2155	2-fluoropyridin- 3-yl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
10	2156	2-chloropyridin-3- yl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
15	2157	2-chloropyridin-5- yl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
20	2158	2-methylthiopyridi n- 3-yl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
25	2159	pyrazin-2-yl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
30	2160	furan-2-yl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
35	2161	thiophen-2-yl	Me	N	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
40	2162	phenyl	H	C	N	2,6-dimethyl-4-heptafluoro isopropylphenyl
45	2163	phenyl	H	C	N-oxide	2,6-dimethyl-4-heptafluoro isopropylphenyl
	2164	phenyl	H	N-oxide	C	2,6-dimethyl-4-heptafluoro isopropylphenyl
	2165	2-fluorophenyl	H	N-oxide	C	2,6-dimethyl-4-heptafluoro isopropylphenyl
	2166	phenyl	H	N-oxide	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2167	2-fluorophenyl	H	N-oxide	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2168	phenyl	Me	N-oxide	C	2,6-dimethyl-4-heptafluoro isopropylphenyl
	2169	2-fluorophenyl	Me	N-oxide	C	2,6-dimethyl-4-heptafluoro isopropylphenyl
	2170	phenyl	Me	N-oxide	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
	2171	2-fluorophenyl	Me	N-oxide	C	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl

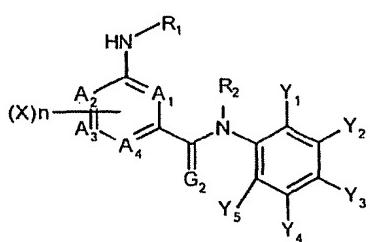
[Table 5]



(X_1, X_2, X_3, X_4 , R₁, R₂ = a hydrogen atom, Q₁ = phenyl)

Comp. No.	G ₁	G ₂	Q ₂
2201	O	S	2,6-dimethyl-4-heptafluoroisopropylphenyl
2202	S	O	2,6-dimethyl-4-heptafluoroisopropylphenyl
2203	S	S	2,6-dimethyl-4-heptafluoroisopropylphenyl
2204	O	S	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
2205	S	O	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
2206	S	S	2,6-dibromo-4-(heptafluoro-n-propylthio)phenyl
2207	O	S	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
2208	S	O	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
2209	S	S	2,6-dimethyl-4-(nonafluoro-2-butyl)phenyl
2210	O	S	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
2211	S	O	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
2212	S	S	2-bromo-4-(heptafluoroisopropyl)-6-(methylsulfonyl)phenyl
2213	O	S	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
2214	S	O	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
2215	S	S	2-n-propyl-6-iodo-4-(heptafluoroisopropyl)phenyl
2216	O	S	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
2217	S	O	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
2218	S	S	2,6-dibromo-4-(heptafluoro-n-propylsulfinyl)phenyl
2219	O	S	2,6-dichloro-4-(heptafluoro-n-propylthio)phenyl
2220	S	O	2,6-dichloro-4-(heptafluoro-n-propylthio)phenyl
2221	S	S	2,6-dichloro-4-(heptafluoro-n-propylthio)phenyl

Table 61



(continued)

(A ₁ , A ₂ , A ₃ , A ₄ = a carbon atom, X = a hydrogen atom, n = 0, G ₂ = an oxygen atom)							
	Comp. No.	R ₁	R ₂	Y ₁	Y ₂	Y ₃	Y ₄
5	I-1	H	H	Me	H	heptafluoro-n-propyl	H
	I-2	H	H	Me	H	heptafluoroisopropyl	H
10	I-3	H	H	Me	Me	heptafluoroisopropyl	Cl
	I-4	H	H	Me	I	heptafluoroisopropyl	Cl
	I-5	H	Me	Me	H	heptafluoroisopropyl	Me
15	I-6	H	i-Pr	Me	H	heptafluoroisopropyl	Me
	I-7	H	H	Et	H	heptafluoroisopropyl	Me
	I-8	H	H	Et	H	heptafluoroisopropyl	Et
20	I-9	H	H	Et	H	heptafluoroisopropyl	I
	I-10	H	H	i-Pr	H	heptafluoroisopropyl	Me
	I-11	H	H	MeO	H	heptafluoroisopropyl	Me
25	I-12	H	H	Cl	H	heptafluoroisopropyl	Et
	I-13	H	H	Cl	Me	heptafluoroisopropyl	Me
	I-14	H	H	Br	H	heptafluoroisopropyl	Me
30	I-15	H	H	Br	H	heptafluoroisopropyl	Et
	I-16	H	H	Br	H	heptafluoroisopropyl	n-Pr
	I-17	H	H	Br	H	heptafluoroisopropyl	n-Bu
35	I-18	H	H	Br	Me	heptafluoroisopropyl	Me
	I-19	H	H	I	H	heptafluoroisopropyl	Me
	I-20	H	H	I	H	heptafluoroisopropyl	n-Pr
40	I-21	H	H	Me	H	nonafluoto-n-butyl	Me
	I-22	H	H	Me	H	nonafluoto-2-butyl	Me
	I-23	H	H	Br	H	trifluoromethylthio	Br
45	I-24	H	H	Br	H	trifluoromethylsulfonyl	Br
	I-25	H	H	Cl	H	heptafluoroisopropylthio	Cl
	I-26	H	H	Br	H	heptafluoroisopropylthio	Br
	I-27	H	H	Cl	H	heptafluoro-n-propylthio	Cl
50	I-28	H	H	Br	H	heptafluoro-n-propylthio	Br
	I-29	H	H	Cl	H	heptafluoroisopropylsulfonyl	Cl
	I-30	H	H	Br	H	nonafluoto-n-butylthio	Br
55	I-31	H	H	Br	H	pentafluoroethylthio	Br
	I-32	H	H	Br	H	heptafluoro-n-propylsulfinyl	Br
	I-33	Me	H	Me	H	heptafluoro-n-propylthio	Me
	I-34	H	Me	Br	H	heptafluoro-n-propylthio	Br
	I-35	H	H	Cl	H	heptafluoroisopropyl	n-Bu
	I-36	H	H	I	H	heptafluoroisopropyl	n-Bu
	I-37	H	H	Br	H	pentafluoroethyl	Br

(continued)

(A ₁ , A ₂ , A ₃ , A ₄ = a carbon atom, X = a hydrogen atom, n = 0, G ₂ = an oxygen atom)								
	Comp. No.	R ₁	R ₂	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅
5	I-38	H	H	Cl	H	heptafluoroisopropyl	H	s-Bu
	I-39	H	H	I	H	heptafluoroisopropyl	H	s-Bu
10	I-40	H	H	Br	H	heptafluoroisopropyl	H	Br
	I-41	H	H	Cl	H	pentafluoroethyl	H	Cl
15	I-42	H	H	Br	H	heptafluoroisopropyl	H	MeSO ₂
	1-43	Me	H	Br	H	heptafluoroisopropyl	H	MeSO ₂
20	1-44	Me	Me	Br	H	heptafluoroisopropyl	H	MeSO ₂
	1-45	H	H	Br	H	heptafluoroisopropyl	H	MeSO
25	1-46	Me	H	Br	H	heptafluoroisopropyl	H	MeSO
	I-47	Me	Me	Br	H	heptafluoroisopropyl	H	MeSO
30	1-48	H	H	Br	H	heptafluoroisopropyl	H	MeS
	1-49	Me	H	Br	H	heptafluoroisopropyl	H	MeS
35	I-50	Me	Me	Br	H	heptafluoroisopropyl	H	MeS
	I-51	Me	Me	Me	H	heptafluoroisopropyl	H	Me
40	I-52	Me	Me	Me	H	nonafluoro-2-butyl	H	Me
	I-53	Me	H	I	H	heptafluoroisopropyl	H	n-Pr
45	I-59	Me	Me	I	H	heptafluoroisopropyl	H	n-Pr
	I-55	Me	Me	Br	H	heptafluoro-n-propylthio	H	Br
50	I-56	Me	H	Br	H	heptafluoro-n-propylthio	H	Br
	I-57	H	H	Br	H	heptafluoro-n-propylsulfinyl	H	Br
55	I-58	Me	H	Br	H	heptafluoro-n-propylsulfinyl	H	Br
	I-59	Me	Me	Br	H	heptafluoro-n-propylsulfinyl	H	Br
60	I-60	H	H	Br	H	heptafluoro-n-propylsulfonyl	H	Br
	I-61	Me	H	Br	H	heptafluoro-n-propylsulfonyl	H	Br
65	I-62	Me	Me	Br	H	heptafluoro-n-propylsulfonyl	H	Br
	I-63	Me	Me	Cl	H	heptafluoro-n-propylthio	H	Cl
70	I-64	Me	H	Cl	H	heptafluoro-n-propylthio	H	Cl
	I-65	H	H	Cl	H	heptafluoro-n-propylsulfinyl	H	Cl
75	I-66	Me	H	Cl	H	heptafluoro-n-propylsulfinyl	H	Cl
	I-67	Me	Me	Cl	H	heptafluoro-n-propylsulfinyl	H	Cl
80	I-68	H	H	Cl	H	heptafluoro-n-propylsulfonyl	H	Cl
	I-69	Me	H	Cl	H	heptafluoro-n-propylsulfonyl	H	Cl
85	I-70	Me	Me	Cl	H	heptafluoro-n-propylsulfonyl	H	Cl

[Table 7]

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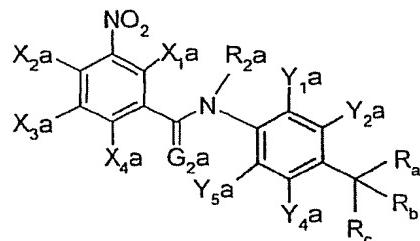
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	X_1	X_2	X_3	X_4	R_1	R_2	Y_1	Y_3	Y_5
I-81	Me	H	H	H	H	H	Me	heptafluoroisopropyl	Me
I-82	H	Me	H	H	H	H	Me	heptafluoroisopropyl	Me
I-83	H	H	H	Me	H	H	Me	heptafluoroisopropyl	Me
I-84	F	H	H	H	H	H	Me	heptafluoroisopropyl	Me
I-85	F	H	H	H	H	H	Me	heptafluoroisopropylthio	Me
I-86	H	F	H	H	H	H	Me	heptafluoroisopropyl	Me
I-87	H	H	H	F	H	H	Me	heptafluoroisopropyl	Me
I-88	Cl	H	H	H	H	H	Me	heptafluoroisopropyl	Me
I-89	H	Cl	H	H	H	H	Me	heptafluoroisopropyl	Me
I-90	H	H	H	Cl	H	H	Me	heptafluoroisopropyl	Me
I-91	Br	H	H	H	H	H	Me	heptafluoroisopropyl	Me
I-92	H	H	H	I	H	H	Me	heptafluoroisopropyl	Me
I-93	H	H	CF_3	H	H	H	Me	heptafluoroisopropyl	Me
I-94	F	H	H	H	H	Me	Me	heptafluoroisopropyl	Me
I-95	F	H	H	H	Me	H	Me	heptafluoroisopropyl	Me
I-96	F	H	H	H	Me	Me	Me	heptafluoroisopropyl	Me
I-97	F	H	H	H	H	Me	Me	nonafluoto-2-butyl	Me
I-98	F	H	H	H	Me	H	Me	nonafluoto-2-butyl	Me
I-99	F	H	H	H	Me	Me	Me	nonafluoto-2-butyl	Me
I-100	F	H	H	H	H	Me	Br	heptafluoro-n-propylthio	Br
I-101	F	H	H	H	Me	H	Br	heptafluoro-n-propylthio	Br
I-102	F	H	H	H	Me	Me	Br	heptafluoro-n-propylthio	Br
I-103	F	H	H	H	H	Me	Br	heptafluoro-n-propylsulfinyl	Br
I-104	F	H	H	H	Me	H	Br	heptafluoro-n-propylsulfinyl	Br
I-105	F	H	H	H	Me	Me	Br	heptafluoro-n-propylsulfinyl	Br
I-106	F	H	H	H	H	Me	n-Pr	heptafluoroisopropyl	I
I-107	F	H	H	H	Me	H	n-Pr	heptafluoroisopropyl	I
I-108	F	H	H	H	Me	Me	n-Pr	heptafluoroisopropyl	I
I-109	F	H	H	H	H	Me	Br	heptafluoroisopropyl	$MeSO_2$

(continued)

(G ₂ = an oxygen atom, Y ₂ , Y ₄ = a hydrogen atom)										
	Comp. No.	X ₁	X ₂	X ₃	X ₄	R ₁	R ₂	Y ₁	Y ₃	Y ₅
5	I-110	F	H	H	H	Me	H	Br	heptafluoroisopropyl	MeSO ₂
10	I-111	F	H	H	H	Me	Me	Br	heptafluoroisopropyl	MeSO ₂
	I-112	F	H	H	H	H	Me	Br	heptafluoroisopropyl	MeSO
15	I-113	F	H	H	H	Me	H	Br	heptafluoroisopropyl	MeSO
20	I-114	F	H	H	H	Me	Me	Br	heptafluoroisopropyl	MeSO

[Table 8]

(X₂a, X₃a, X₄a, Y₂a, Y₄a = a hydrogen atom, Y₁a, Y₅a = a methyl group, G₂a = an oxygen atom)

	Comp. No.	X ₁ a	R ₂ a	R _a	R _b	R _c
30	I-121	H	H	CF ₃	F	OH
	I-122	H	H	CF ₃	F	Cl
35	I-123	H	H	CF ₃	F	Br
	I-124	H	H	CF ₃	CF ₃	OH
40	I-125	H	H	CF ₃	CF ₃	Cl
	I-126	H	H	CF ₃	CF ₃	Br
45	I-127	H	H	CF ₃	C ₂ F ₅	OH
	I-128	H	H	CF ₃	C ₂ F ₅	Cl
50	I-129	H	H	CF ₃	C ₂ F ₅	Br
	I-130	F	H	CF ₃	F	OH
55	I-131	F	H	CF ₃	F	Cl
	I-132	F	H	CF ₃	F	Br
	I-133	F	H	CF ₃	CF ₃	OH
	I-139	F	H	CF ₃	CF ₃	Cl
	I-135	F	H	CF ₃	CF ₃	Br
	I-136	F	H	CF ₃	C ₂ F ₅	OH
	I-137	F	H	CF ₃	C ₂ F ₅	Cl
	I-138	F	H	CF ₃	C ₂ F ₅	Br
	I-139	Cl	H	CF ₃	F	OH

(continued)

$(X_2a, X_3a, X_4a, Y_2a, Y_4a = a \text{ hydrogen atom}, Y_1a, Y_5a = a \text{ methyl group}, G_2a = an \text{ oxygen atom})$						
Comp. No.	X_1a	R_2a	R_a	R_b	R_c	
5	I-140	Cl	H	CF ₃	F	Cl
10	I-141	Cl	H	CF ₃	F	Br
15	I-142	Cl	H	CF ₃	CF ₃	OH
20	I-143	Cl	H	CF ₃	CF ₃	Cl
25	I-144	Cl	H	CF ₃	CF ₃	Br
30	I-145	Cl	H	CF ₃	C ₂ F ₅	OH
35	I-146	Cl	H	CF ₃	C ₂ F ₅	Cl
40	I-197	Cl	H	CF ₃	C ₂ F ₅	Br
45	I-148	H	Me	CF ₃	F	OH
50	I-149	H	Me	CF ₃	F	Cl
55	I-150	H	Me	CF ₃	F	Br
	I-151	H	Me	CF ₃	CF ₃	OH
	I-152	H	Me	CF ₃	CF ₃	Cl
	I-153	H	Me	CF ₃	CF ₃	Br
	I-154	H	Me	CF ₃	C ₂ F ₅	OH
	I-155	H	Me	CF ₃	C ₂ F ₅	Cl
	I-156	H	Me	CF ₃	C ₂ F ₅	Br
	I-157	F	Me	CF ₃	F	OH
	I-158	F	Me	CF ₃	F	Cl
	I-159	F	Me	CF ₃	F	Br
	I-160	F	Me	CF ₃	CF ₃	OH
	I-161	F	Me	CF ₃	CF ₃	Cl
	I-162	F	Me	CF ₃	CF ₃	Br
	I-163	F	Me	CF ₃	C ₂ F ₅	OH
	I-164	F	Me	CF ₃	C ₂ F ₅	Cl
	I-165	F	Me	CF ₃	C ₂ F ₅	Br
	I-166	Cl	Me	CF ₃	F	OH
	I-167	Cl	Me	CF ₃	F	Cl
	I-168	Cl	Me	CF ₃	F	Br
	I-169	Cl	Me	CF ₃	CF ₃	OH
	I-170	Cl	Me	CF ₃	CF ₃	Cl
	I-171	Cl	Me	CF ₃	CF ₃	Br
	I-172	Cl	Me	CF ₃	C ₂ F ₅	OH
	I-173	Cl	Me	CF ₃	C ₂ F ₅	Cl
	I-174	Cl	Me	CF ₃	C ₂ F ₅	Br

[Table 9]

5																																																																																																																																																																																																																			
10	$(X_2a, X_3a, X_4a, Y_2a, Y_4a = \text{a hydrogen atom}, Y_1a, Y_5a = \text{a methyl group}, G_2a = \text{an oxygen atom})$																																																																																																																																																																																																																		
15	<table border="1"> <thead> <tr> <th>Comp. No.</th><th>X₁a</th><th>R₁a</th><th>R₂a</th><th>R_a</th><th>R_b</th><th>R_c</th></tr> </thead> <tbody> <tr><td>I-201</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>OH</td></tr> <tr><td>I-202</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>Cl</td></tr> <tr><td>I-203</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>Br</td></tr> <tr><td>I-204</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>OH</td></tr> <tr><td>I-205</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>Cl</td></tr> <tr><td>I-206</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>Br</td></tr> <tr><td>I-207</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>OH</td></tr> <tr><td>I-208</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>Cl</td></tr> <tr><td>I-209</td><td>H</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>Br</td></tr> <tr><td>I-210</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>OH</td></tr> <tr><td>I-211</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>Cl</td></tr> <tr><td>I-212</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>Br</td></tr> <tr><td>I-213</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>OH</td></tr> <tr><td>I-214</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>Cl</td></tr> <tr><td>I-215</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>Br</td></tr> <tr><td>I-216</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>OH</td></tr> <tr><td>I-217</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>Cl</td></tr> <tr><td>I-218</td><td>F</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>Br</td></tr> <tr><td>I-219</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>OH</td></tr> <tr><td>I-220</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>Cl</td></tr> <tr><td>I-221</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>F</td><td>Br</td></tr> <tr><td>I-222</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>OH</td></tr> <tr><td>I-223</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>Cl</td></tr> <tr><td>I-224</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>CF₃</td><td>Br</td></tr> <tr><td>I-225</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>OH</td></tr> <tr><td>I-226</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>Cl</td></tr> <tr><td>I-227</td><td>Cl</td><td>H</td><td>H</td><td>CF₃</td><td>C₂F₅</td><td>Br</td></tr> <tr> <td>55</td><td>I-228</td><td>H</td><td>H</td><td>Me</td><td>CF₃</td><td>F</td><td>OH</td></tr> </tbody> </table>							Comp. No.	X ₁ a	R ₁ a	R ₂ a	R _a	R _b	R _c	I-201	H	H	H	CF ₃	F	OH	I-202	H	H	H	CF ₃	F	Cl	I-203	H	H	H	CF ₃	F	Br	I-204	H	H	H	CF ₃	CF ₃	OH	I-205	H	H	H	CF ₃	CF ₃	Cl	I-206	H	H	H	CF ₃	CF ₃	Br	I-207	H	H	H	CF ₃	C ₂ F ₅	OH	I-208	H	H	H	CF ₃	C ₂ F ₅	Cl	I-209	H	H	H	CF ₃	C ₂ F ₅	Br	I-210	F	H	H	CF ₃	F	OH	I-211	F	H	H	CF ₃	F	Cl	I-212	F	H	H	CF ₃	F	Br	I-213	F	H	H	CF ₃	CF ₃	OH	I-214	F	H	H	CF ₃	CF ₃	Cl	I-215	F	H	H	CF ₃	CF ₃	Br	I-216	F	H	H	CF ₃	C ₂ F ₅	OH	I-217	F	H	H	CF ₃	C ₂ F ₅	Cl	I-218	F	H	H	CF ₃	C ₂ F ₅	Br	I-219	Cl	H	H	CF ₃	F	OH	I-220	Cl	H	H	CF ₃	F	Cl	I-221	Cl	H	H	CF ₃	F	Br	I-222	Cl	H	H	CF ₃	CF ₃	OH	I-223	Cl	H	H	CF ₃	CF ₃	Cl	I-224	Cl	H	H	CF ₃	CF ₃	Br	I-225	Cl	H	H	CF ₃	C ₂ F ₅	OH	I-226	Cl	H	H	CF ₃	C ₂ F ₅	Cl	I-227	Cl	H	H	CF ₃	C ₂ F ₅	Br	55	I-228	H	H	Me	CF ₃	F	OH
Comp. No.	X ₁ a	R ₁ a	R ₂ a	R _a	R _b	R _c																																																																																																																																																																																																													
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I-227	Cl	H	H	CF ₃	C ₂ F ₅	Br																																																																																																																																																																																																													
55	I-228	H	H	Me	CF ₃	F	OH																																																																																																																																																																																																												

(continued)

$(X_2a, X_3a, X_4a, Y_2a, Y_4a = \text{a hydrogen atom}, Y_1a, Y_5a = \text{a methyl group}, G_2a = \text{an oxygen atom})$						
Comp. No.	X _{1a}	R _{1a}	R _{2a}	R _a	R _b	R _c
I-229	H	H	Me	CF ₃	F	Cl
I-230	H	H	Me	CF ₃	F	Br
I-231	H	H	Me	CF ₃	CF ₃	OH
I-232	H	H	Me	CF ₃	CF ₃	Cl
I-233	H	H	Me	CF ₃	CF ₃	Br
I-239	H	H	Me	CF ₃	C ₂ F ₅	OH
I-235	H	H	Me	CF ₃	C ₂ F ₅	Cl
I-236	H	H	Me	CF ₃	C ₂ F ₅	Br
I-237	F	H	Me	CF ₃	F	OH
I-238	F	H	Me	CF ₃	F	Cl
I-239	F	H	Me	CF ₃	F	Br
I-290	F	H	Me	CF ₃	CF ₃	OH
I-241	F	H	Me	CF ₃	CF ₃	Cl
I-242	F	H	Me	CF ₃	CF ₃	Br
I-243	F	H	Me	CF ₃	C ₂ F ₅	OH
I-244	F	H	Me	CF ₃	C ₂ F ₅	Cl
I-245	F	H	Me	CF ₃	C ₂ F ₅	Br
I-246	Cl	H	Me	CF ₃	F	OH
I-247	Cl	H	Me	CF ₃	F	Cl
I-248	Cl	H	Me	CF ₃	F	Br
I-249	Cl	H	Me	CF ₃	CF ₃	OH
I-250	Cl	H	Me	CF ₃	CF ₃	Cl
I-251	Cl	H	Me	CF ₃	CF ₃	Br
I-252	Cl	H	Me	CF ₃	C ₂ F ₅	OH
I-253	Cl	H	Me	CF ₃	C ₂ F ₅	Cl
I-254	Cl	H	Me	CF ₃	C ₂ F ₅	Br
I-255	H	Me	H	CF ₃	F	OH
I-256	H	Me	H	CF ₃	F	Cl
I-257	H	Me	H	CF ₃	F	Br
I-258	H	Me	H	CF ₃	CF ₃	OH
I-259	H	Me	H	CF ₃	CF ₃	Cl
I-260	H	Me	H	CF ₃	CF ₃	Br
I-261	H	Me	H	CF ₃	C ₂ F ₅	OH
I-262	H	Me	H	CF ₃	C ₂ F ₅	Cl
I-263	H	Me	H	CF ₃	C ₂ F ₅	Br
I-264	F	Me	H	CF ₃	F	OH
I-265	F	Me	H	CF ₃	F	Cl

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a=a hydrogen atom, Y ₁ a, Y ₅ a=a methyl group, G ₂ a=an oxygen atom)						
	Comp. No.	X ₁ a	R ₁ a	R ₂ a	R _a	R _b
5	I-266	F	Me	H	CF ₃	F
	I-267	F	Me	H	CF ₃	CF ₃
	I-268	F	Me	H	CF ₃	CF ₃
10	I-269	F	Me	H	CF ₃	CF ₃
	I-270	F	Me	H	CF ₃	C ₂ F ₅
	I-271	F	Me	H	CF ₃	C ₂ F ₅
15	I-272	F	Me	H	CF ₃	C ₂ F ₅
	I-273	Cl	Me	H	CF ₃	F
	I-274	Cl	Me	H	CF ₃	F
20	I-275	Cl	Me	H	CF ₃	F
	I-276	Cl	Me	H	CF ₃	CF ₃
	I-277	Cl	Me	H	CF ₃	CF ₃
	I-278	Cl	Me	H	CF ₃	CF ₃
25	I-279	Cl	Me	H	CF ₃	C ₂ F ₅
	I-280	Cl	Me	H	CF ₃	C ₂ F ₅
	I-281	Cl	Me	H	CF ₃	C ₂ F ₅
30	I-282	H	Me	Me	CF ₃	F
	I-283	H	Me	Me	CF ₃	F
	I-284	H	Me	Me	CF ₃	F
	I-285	H	Me	Me	CF ₃	CF ₃
35	I-286	H	Me	Me	CF ₃	CF ₃
	I-287	H	Me	Me	CF ₃	CF ₃
	I-288	H	Me	Me	CF ₃	C ₂ F ₅
40	I-289	H	Me	Me	CF ₃	C ₂ F ₅
	I-290	H	Me	Me	CF ₃	C ₂ F ₅
	I-291	F	Me	Me	CF ₃	F
	I-292	F	Me	Me	CF ₃	F
45	I-293	F	Me	Me	CF ₃	F
	I-294	F	Me	Me	CF ₃	CF ₃
	I-295	F	Me	Me	CF ₃	CF ₃
50	I-296	F	Me	Me	CF ₃	CF ₃
	I-297	F	Me	Me	CF ₃	C ₂ F ₅
	I-298	F	Me	Me	CF ₃	C ₂ F ₅
	I-299	F	Me	Me	CF ₃	C ₂ F ₅
55	I-300	Cl	Me	Me	CF ₃	F
	I-301	Cl	Me	Me	CF ₃	F
	I-302	Cl	Me	Me	CF ₃	F

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, Y ₁ a, Y ₅ a = a methyl group, G ₂ a = an oxygen atom)						
Comp. No.	X ₁ a	R ₁ a	R ₂ a	R _a	R _b	R _c
I-303	Cl	Me	Me	CF ₃	CF ₃	OH
I-304	Cl	Me	Me	CF ₃	CF ₃	Cl
I-305	Cl	Me	Me	CF ₃	CF ₃	Br
I-306	Cl	Me	Me	CF ₃	C ₂ F ₅	OH
I-307	Cl	Me	Me	CF ₃	C ₂ F ₅	Cl
I-308	Cl	Me	Me	CF ₃	C ₂ F ₅	Br

15

[Table 10]

20	25		(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)						
			Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b
I-351	phenyl	H	H	H	H	H	H	CF ₃	OH
I-352	2-methylphenyl	H	H	H	H	H	H	CF ₃	OH
I-353	3-methylphenyl	H	H	H	H	H	H	CF ₃	OH
I-354	4-methylphenyl	H	H	H	H	H	H	CF ₃	OH
I-355	2,3-dimethylphenyl	H	H	H	H	H	H	CF ₃	OH
I-356	2,4,6-trimethylphenyl	H	H	H	H	H	H	CF ₃	OH
I-357	4-ethylphenyl	H	H	H	H	H	H	CF ₃	OH
I-358	2-fluorophenyl	H	H	H	H	H	H	CF ₃	OH
I-359	3-fluorophenyl	H	H	H	H	H	H	CF ₃	OH
I-360	4-fluorophenyl	H	H	H	H	H	H	CF ₃	OH
I-361	2-chlorophenyl	H	H	H	H	H	H	CF ₃	OH
I-362	3-chlorophenyl	H	H	H	H	H	H	CF ₃	OH
I-363	4-chlorophenyl	H	H	H	H	H	H	CF ₃	OH
I-369	2-bromophenyl	H	H	H	H	H	H	CF ₃	OH
I-365	4-bromophenyl	H	H	H	H	H	H	CF ₃	OH
I-366	2-iodophenyl	H	H	H	H	H	H	CF ₃	OH
I-367	3-iodophenyl	H	H	H	H	H	H	CF ₃	OH
I-368	4-iodophenyl	H	H	H	H	H	H	CF ₃	OH

55

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)									
	Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
5	I-369	3-cyanophenyl	H	H	H	H	H	CF ₃	OH
	I-370	4-cyanophenyl	H	H	H	H	H	CF ₃	OH
10	I-371	2-nitrophenyl	H	H	H	H	H	CF ₃	OH
	I-372	3-nitrophenyl	H	H	H	H	H	CF ₃	OH
15	I-373	4-nitrophenyl	H	H	H	H	H	CF ₃	OH
	I-374	2-trifluoromethylphenyl	H	H	H	H	H	CF ₃	OH
20	I-375	4-trifluoromethylphenyl	H	H	H	H	H	CF ₃	OH
	I-376	4-trifluoromethoxyphenyl	H	H	H	H	H	CF ₃	OH
25	I-377	2,3-difluorophenyl	H	H	H	H	H	CF ₃	OH
	I-378	2,4-difluorophenyl	H	H	H	H	H	CF ₃	OH
30	I-379	2,5-difluorophenyl	H	H	H	H	H	CF ₃	OH
	I-380	2,6-difluorophenyl	H	HH	H	H	H	CF ₃	OH
35	I-381	2,4-dichlorophenyl	H	H	H	H	H	CF ₃	OH
	I-382	2,6-dichlorophenyl	H	H	H	H	H	CF ₃	OH
40	I-383	3,4-dichlorophenyl	H	H	H	H	H	CF ₃	OH
	I-384	4-fluoro-3-nitrophenyl	H	H	H	H	H	CF ₃	OH
45	I-385	5-fluoro-2-nitrophenyl	H	H	H	H	H	CF ₃	OH
	I-386	2-chloro-4-nitrophenyl	H	H	H	H	H	CF ₃	OH
50	I-387	2-chloro-4-fluorophenyl	H	H	H	H	H	CF ₃	OH
	I-388	3-chloro-4-fluorophenyl	H	H	H	H	H	CF ₃	OH
55	I-389	2-chloro-6-fluorophenyl	H	H	H	H	H	CF ₃	OH
	I-390	4-chloro-2-fluorophenyl	H	H	H	H	H	CF ₃	OH
60	I-391	4-chloro-2-nitrophenyl	H	H	H	H	H	CF ₃	OH
	I-392	2,3,6-trifluorophenyl	H	H	H	H	H	CF ₃	OH
65	I-393	2,3,4,5,6-pentafluorophenyl	H	H	H	H	H	CF ₃	OH
	I-394	pyridin-2-yl	H	H	H	H	H	CF ₃	OH
70	I-395	pyridin-3-yl	H	H	H	H	H	CF ₃	OH
	I-396	2-fluoropyridin-3-yl	H	H	H	H	H	CF ₃	OH
75	I-397	2-chloropyridin-3-yl	H	H	H	H	H	CF ₃	OH
	I-398	4-chloropyridin-3-yl	H	H	H	H	H	CF ₃	OH
80	I-399	2-chloropyridin-5-yl	H	H	H	H	H	CF ₃	OH
	I-400	2-methylthiopyridin-3-yl	H	H	H	H	H	CF ₃	OH
85	I-401	2,6-dichloropyridin-3-yl	H	H	H	H	H	CF ₃	OH
	I-402	2,6-dichloropyridin-4-yl	H	H	H	H	H	CF ₃	OH
90	I-403	pyrazin-2-yl	H	H	H	H	H	CF ₃	OH
	I-404	furan-2-yl	H	H	H	H	H	CF ₃	OH
95	I-405	thiophen-2-yl	H	H	H	H	H	CF ₃	OH

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)									
	Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
5	I-406	thiophen-3-yl	H	H	H	H	H	CF ₃	OH
10	I-407	4-methoxyphenyl	H	H	H	H	H	CF ₃	OH
15	I-408	3,4,5-trimethoxyphenyl	H	H	H	H	H	CF ₃	OH
20	I-409	3-methoxyphenyl	H	H	H	H	H	CF ₃	OH
25	I-410	2-methoxyphenyl	H	H	H	H	H	CF ₃	OH
30	I-411	3,5-dimethoxyphenyl	H	H	H	H	H	CF ₃	OH
35	I-912	2,6-dimethoxyphenyl	H	H	H	H	H	CF ₃	OH
40	I-913	4-ethoxyphenyl	H	H	H	H	H	CF ₃	OH
45	I-414	2-(4-trifluoromethylphenyl)phenyl	H	H	H	H	H	CF ₃	OH
50	I-415	1-phenyl-5-trifluoromethylpyrazol-4-yl	H	H	H	H	H	CF ₃	OH
55	I-416	5-methylisoxazol-3-yl	H	H	H	H	H	CF ₃	OH
	I-917	9-methyl-1,2,3-thiadiazol-5-yl	H	H	H	H	H	CF ₃	OH
	I-418	pyrrole-2-yl	H	H	H	H	H	CF ₃	OH
	I-419	phenyl	H	H	H	H	H	CF ₃	Cl
	I-420	2-methylphenyl	H	H	H	H	H	CF ₃	Cl
	I-421	4-methylphenyl	H	H	H	H	H	CF ₃	Cl
	I-422	2-fluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-923	3-fluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-424	4-fluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-425	2-chlorophenyl	H	H	H	H	H	CF ₃	Cl
	I-926	4-chlorophenyl	H	H	H	H	H	CF ₃	Cl
	I-927	2-bromophenyl	H	H	H	H	H	CF ₃	Cl
	I-928	2-iodophenyl	H	H	H	H	H	CF ₃	Cl
	I-429	3-cyanophenyl	H	H	H	H	H	CF ₃	Cl
	I-430	4-cyanophenyl	H	H	H	H	H	CF ₃	Cl
	I-431	2-nitrophenyl	H	H	H	H	H	CF ₃	Cl
	I-432	3-nitrophenyl	H	H	H	H	H	CF ₃	Cl
	I-433	4-nitrophenyl	H	H	H	H	H	CF ₃	Cl
	I-434	2-trifluoromethylphenyl	H	H	H	H	H	CF ₃	Cl
	I-435	4-trifluoromethylphenyl	H	H	H	H	H	CF ₃	Cl
	I-436	4-trifluoromethoxyphenyl	H	H	H	H	H	CF ₃	Cl
	I-437	2,3-difluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-438	2,4-difluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-439	2,5-difluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-440	2,6-difluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-441	2,4-dichlorophenyl	H	H	H	H	H	CF ₃	Cl
	I-442	2,6-dichlorophenyl	H	H	H	H	H	CF ₃	Cl

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)									
	Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
5	I-443	3,4-dichlorophenyl	H	H	H	H	H	CF ₃	Cl
	1-444	2-chloro-4-nitrophenyl	H	H	H	H	H	CF ₃	Cl
10	1-445	2-chloro-4-fluorophenyl	H	H	H	H	H	CF ₃	Cl
	1-446	2-chloro-6-fluorophenyl	H	H	H	H	H	CF ₃	Cl
	I-997	4-chloro-2-fluorophenyl	H	H	H	H	H	CF ₃	Cl
15	1-448	4-chloro-2-nitrophenyl	H	H	H	H	H	CF ₃	Cl
	1-449	2,3,6-trifluorophenyl	H	H	H	H	H	CF ₃	Cl
	1-450	pyridin-2-yl	H	H	H	H	H	CF ₃	Cl
20	I-451	pyridin-3-yl	H	H	H	H	H	CF ₃	Cl
	I-452	2-fluoropyridin-3-yl	H	H	H	H	H	CF ₃	Cl
	1-453	2-chloropyridin-3-yl	H	H	H	H	H	CF ₃	Cl
25	1-454	2-chloropyridin-5-yl	H	H	H	H	H	CF ₃	Cl
	1-455	2-methylthiopyridin-3-yl	H	H	H	H	H	CF ₃	Cl
	I-456	pyrazin-2-yl	H	H	H	H	H	CF ₃	Cl
30	I-457	furan-2-yl	H	H	H	H	H	CF ₃	Cl
	1-458	thiophen-2-yl	H	H	H	H	H	CF ₃	Cl
	I-459	phenyl	F	H	H	H	H	CF ₃	OH
35	1-460	2-methylphenyl	F	H	H	H	H	CF ₃	OH
	I-461	4-methylphenyl	F	H	H	H	H	CF ₃	OH
	I-462	2-fluorophenyl	F	H	H	H	H	CF ₃	OH
	I-463	3-fluorophenyl	F	H	H	H	H	CF ₃	OH
40	1-464	4-fluorophenyl	F	H	H	H	H	CF ₃	OH
	1-465	2-chlorophenyl	F	H	H	H	H	CF ₃	OH
	I-466	4-chlorophenyl	F	H	H	H	H	CF ₃	OH
45	I-467	2-bromophenyl	F	H	H	H	H	CF ₃	OH
	I-468	2-iodophenyl	F	H	H	H	H	CF ₃	OH
	I-469	3-cyanophenyl	F	H	H	H	H	CF ₃	OH
	I-470	4-cyanophenyl	F	H	H	H	H	CF ₃	OH
50	I-471	2-nitrophenyl	F	H	H	H	H	CF ₃	OH
	I-472	3-nitrophenyl	F	H	H	H	H	CF ₃	OH
	I-473	4-nitrophenyl	F	H	H	H	H	CF ₃	OH
	I-474	2-trifluoromethylphenyl	F	H	H	H	H	CF ₃	OH
55	I-475	4-trifluoromethylphenyl	F	H	H	H	H	CF ₃	OH
	I-476	4-trifluoromethoxyphenyl	F	H	H	H	H	CF ₃	OH
	I-477	2,3-difluorophenyl	F	H	H	H	H	CF ₃	OH
	I-478	2,4-difluorophenyl	F	H	H	H	H	CF ₃	OH
	I-479	2,5-difluorophenyl	F	H	H	H	H	CF ₃	OH

(continued)

$(X_2a, X_3a, X_4a, Y_2a, Y_4a = a \text{ hydrogen atom}, G_1a, G_2a = an \text{ oxygen atom}, R_a = a \text{ trifluoromethyl group})$								
Comp. No.	Q _{1a}	X _{1a}	R _{1a}	R _{2a}	Y _{1a}	Y _{5a}	R _b	R _c
I-480	2,6-difluorophenyl	F	H	H	H	H	CF ₃	OH
I-481	2,4-dichlorophenyl	F	H	H	H	H	CF ₃	OH
I-482	2,6-dichlorophenyl	F	H	H	H	H	CF ₃	OH
I-483	3,4-dichlorophenyl	F	H	H	H	H	CF ₃	OH
I-484	2-chloro-4-nitrophenyl	F	H	H	H	H	CF ₃	OH
I-485	2-chloro-4-fluorophenyl	F	H	H	H	H	CF ₃	OH
I-486	2-chloro-6-fluorophenyl	F	H	H	H	H	CF ₃	OH
I-487	4-chloro-2-fluorophenyl	F	H	H	H	H	CF ₃	OH
I-488	4-chloro-2-nitrophenyl	F	H	H	H	H	CF ₃	OH
I-489	2,3,6-trifluorophenyl	F	H	H	H	H	CF ₃	OH
I-490	pyridin-2-yl	F	H	H	H	H	CF ₃	OH
I-491	pyridin-3-yl	F	H	H	H	H	CF ₃	OH
I-992	2-fluoropyridin-3-yl	F	H	H	H	H	CF ₃	OH
I-993	2-chloropyridin-3-yl	F	H	H	H	H	CF ₃	OH
I-494	2-chloropyridin-5-yl	F	H	H	H	H	CF ₃	OH
I-995	2-methylthiopyridin-3-yl	F	H	H	H	H	CF ₃	OH
I-996	pyrazin-2-yl	F	H	H	H	H	CF ₃	OH
I-997	furan-2-yl	F	H	H	H	H	CF ₃	OH
I-998	thiophen-2-yl	F	H	H	H	H	CF ₃	OH
I-499	phenyl	F	H	H	H	H	CF ₃	Cl
I-500	2-methylphenyl	F	H	H	H	H	CF ₃	Cl
I-501	4-methylphenyl	F	H	H	H	H	CF ₃	Cl
I-502	2-fluorophenyl	F	H	H	H	H	CF ₃	Cl
I-503	3-fluorophenyl	F	H	H	H	H	CF ₃	Cl
I-509	4-fluorophenyl	F	H	H	H	H	CF ₃	Cl
I-505	2-chlorophenyl	F	H	H	H	H	CF ₃	Cl
I-506	4-chlorophenyl	F	H	H	H	H	CF ₃	Cl
I-507	2-bromophenyl	F	H	H	H	H	CF ₃	Cl
I-508	2-iodophenyl	F	H	H	H	H	CF ₃	Cl
I-509	3-cyanophenyl	F	H	H	H	H	CF ₃	Cl
I-510	4-cyanophenyl	F	H	H	H	H	CF ₃	Cl
I-511	2-nitrophenyl	F	H	H	H	H	CF ₃	Cl
I-512	3-nitrophenyl	F	H	H	H	H	CF ₃	Cl
I-513	4-nitrophenyl	F	H	H	H	H	CF ₃	Cl
I-514	2-trifluoromethylphenyl	F	H	H	H	H	CF ₃	Cl
I-515	4-trifluoromethylphenyl	F	H	H	H	H	CF ₃	Cl
I-516	4-trifluoromethoxyphenyl	F	H	H	H	H	CF ₃	Cl

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)								
Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
I-517	2,3-difluorophenyl	F	H	H	H	H	CF ₃	Cl
I-518	2,4-difluorophenyl	F	H	H	H	H	CF ₃	Cl
I-519	2,5-difluorophenyl	F	H	H	H	H	CF ₃	Cl
I-520	2,6-difluorophenyl	F	H	H	H	H	CF ₃	Cl
I-521	2,4-dichlorophenyl	F	H	H	H	H	CF ₃	Cl
I-522	2,6-dichlorophenyl	F	H	H	H	H	CF ₃	Cl
I-523	3,4-dichlorophenyl	F	H	H	H	H	CF ₃	Cl
I-524	2-chloro-4-nitrophenyl	F	H	H	H	H	CF ₃	Cl
I-525	2-chloro-4-fluorophenyl	F	H	H	H	H	CF ₃	Cl
I-526	2-chloro-6-fluorophenyl	F	H	H	H	H	CF ₃	Cl
I-527	4-chloro-2-fluorophenyl	F	H	H	H	H	CF ₃	Cl
I-528	4-chloro-2-nitrophenyl	F	H	H	H	H	CF ₃	Cl
I-529	2,3,6-trifluorophenyl	F	H	H	H	H	CF ₃	Cl
I-530	pyridin-2-yl	F	H	H	H	H	CF ₃	Cl
I-531	pyridin-3-yl	F	H	H	H	H	CF ₃	Cl
I-532	2-fluoropyridin-3-yl	F	H	H	H	H	CF ₃	Cl
I-533	2-chloropyridin-3-yl	F	H	H	H	H	CF ₃	Cl
I-534	2-chloropyridin-5-yl	F	H	H	H	H	CF ₃	Cl
I-535	2-methylthiopyridin-3-yl	F	H	H	H	H	CF ₃	Cl
I-536	pyrazin-2-yl	F	H	H	H	H	CF ₃	Cl
I-537	furan-2-yl	F	H	H	H	H	CF ₃	Cl
I-538	thiophen-2-yl	F	H	H	H	H	CF ₃	Cl
I-539	phenyl	H	Me	H	H	H	CF ₃	OH
I-540	2-methylphenyl	H	Me	H	H	H	CF ₃	OH
I-541	4-methylphenyl	H	Me	H	H	H	CF ₃	OH
I-542	2-fluorophenyl	H	Me	H	H	H	CF ₃	OH
I-543	3-fluorophenyl	H	Me	H	H	H	CF ₃	OH
I-544	4-fluorophenyl	H	Me	H	H	H	CF ₃	OH
I-545	2-chlorophenyl	H	Me	H	H	H	CF ₃	OH
I-546	4-chlorophenyl	H	Me	H	H	H	CF ₃	OH
I-547	2-bromophenyl	H	Me	H	H	H	CF ₃	OH
I-548	2-iodophenyl	H	Me	H	H	H	CF ₃	OH
I-549	3-cyanophenyl	H	Me	H	H	H	CF ₃	OH
I-550	4-cyanophenyl	H	Me	H	H	H	CF ₃	OH
I-551	2-nitrophenyl	H	Me	H	H	H	CF ₃	OH
I-552	3-nitrophenyl	H	Me	H	H	H	CF ₃	OH
I-553	4-nitrophenyl	H	Me	H	H	H	CF ₃	OH

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)								
Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
5	I-554	2-trifluoromethylphenyl	H	Me	H	H	CF ₃	OH
	I-555	4-trifluoromethylphenyl	H	Me	H	H	CF ₃	OH
10	I-556	4-trifluoromethoxyphenyl	H	Me	H	H	CF ₃	OH
	I-557	2,3-difluorophenyl	H	Me	H	H	CF ₃	OH
15	I-558	2,4-difluorophenyl	H	Me	H	H	CF ₃	OH
	I-559	2,5-difluorophenyl	H	Me	H	H	CF ₃	OH
20	I-560	2,6-difluorophenyl	H	Me	H	H	CF ₃	OH
	I-561	2,4-dichlorophenyl	H	Me	H	H	CF ₃	OH
25	I-562	2,6-dichlorophenyl	H	Me	H	H	CF ₃	OH
	I-563	3,4-dichlorophenyl	H	Me	H	H	CF ₃	OH
30	I-564	2-chloro-4-nitrophenyl	H	Me	H	H	CF ₃	OH
	I-565	2-chloro-4-fluorophenyl	H	Me	H	H	CF ₃	OH
35	I-566	2-chloro-6-fluorophenyl	H	Me	H	H	CF ₃	OH
	I-567	4-chloro-2-fluorophenyl	H	Me	H	H	CF ₃	OH
40	I-568	4-chloro-2-nitrophenyl	H	Me	H	H	CF ₃	OH
	I-569	2,3,6-trifluorophenyl	H	Me	H	H	CF ₃	OH
45	I-570	pyridin-2-yl	H	Me	H	H	CF ₃	OH
	I-571	pyridin-3-yl	H	Me	H	H	CF ₃	OH
50	I-572	2-fluoropyridin-3-yl	H	Me	H	H	CF ₃	OH
	I-573	2-chloropyridin-3-yl	H	Me	H	H	CF ₃	OH
55	I-574	2-chloropyridin-5-yl	H	Me	H	H	CF ₃	OH
	I-575	2-methylthiopyridin-3-yl	H	Me	H	H	CF ₃	OH
	I-576	pyrazin-2-yl	H	Me	H	H	CF ₃	OH
	I-577	furan-2-yl	H	Me	H	H	CF ₃	OH
	I-578	thiophen-2-yl	H	Me	H	H	CF ₃	OH
	I-579	phenyl	F	Me	H	H	CF ₃	Cl
	I-580	2-methylphenyl	F	Me	H	H	CF ₃	Cl
	I-581	4-methylphenyl	F	Me	H	H	CF ₃	Cl
	I-582	2-fluorophenyl	F	Me	H	H	CF ₃	Cl
	I-583	3-fluorophenyl	F	Me	H	H	CF ₃	Cl
	I-584	4-fluorophenyl	F	Me	H	H	CF ₃	Cl
	I-585	2-chlorophenyl	F	Me	H	H	CF ₃	Cl
	I-586	4-chlorophenyl	F	Me	H	H	CF ₃	Cl
	I-587	2-bromophenyl	F	Me	H	H	CF ₃	Cl
	I-588	2-iodophenyl	F	Me	H	H	CF ₃	Cl
	I-589	3-cyanophenyl	F	Me	H	H	CF ₃	Cl
	I-590	4-cyanophenyl	F	Me	H	H	CF ₃	Cl

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)								
Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
I-591	2-nitrophenyl	F	Me	H	H	H	CF ₃	Cl
I-592	3-nitrophenyl	F	Me	H	H	H	CF ₃	Cl
I-593	4-nitrophenyl	F	Me	H	H	H	CF ₃	Cl
I-594	2-trifluoromethylphenyl	F	Me	H	H	H	CF ₃	Cl
I-595	4-trifluoromethylphenyl	F	Me	H	H	H	CF ₃	Cl
I-596	4-trifluoromethoxyphenyl	F	Me	H	H	H	CF ₃	Cl
I-597	2,3-difluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-598	2,4-difluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-599	2,5-difluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-600	2,6-difluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-601	2,4-dichlorophenyl	F	Me	H	H	H	CF ₃	Cl
I-602	2,6-dichlorophenyl	F	Me	H	H	H	CF ₃	Cl
I-603	3,4-dichlorophenyl	F	Me	H	H	H	CF ₃	Cl
I-604	2-chloro-4-nitrophenyl	F	Me	H	H	H	CF ₃	Cl
I-605	2-chloro-4-fluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-606	2-chloro-6-fluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-607	4-chloro-2-fluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-608	4-chloro-2-nitrophenyl	F	Me	H	H	H	CF ₃	Cl
I-609	2,3,6-trifluorophenyl	F	Me	H	H	H	CF ₃	Cl
I-610	pyridin-2-yl	F	Me	H	H	H	CF ₃	Cl
I-611	pyridin-3-yl	F	Me	H	H	H	CF ₃	Cl
I-612	2-fluoropyridin-3-yl	F	Me	H	H	H	CF ₃	Cl
I-613	2-chloropyridin-3-yl	F	Me	H	H	H	CF ₃	Cl
I-614	2-chloropyridin-5-yl	F	Me	H	H	H	CF ₃	Cl
I-615	2-methylthiopyridin-3-yl	F	Me	H	H	H	CF ₃	Cl
I-616	pyrazin-2-yl	F	Me	H	H	H	CF ₃	Cl
I-617	furan-2-yl	F	Me	H	H	H	CF ₃	Cl
I-618	thiophen-2-yl	F	Me	H	H	H	CF ₃	Cl
I-619	phenyl	H	Me	Me	H	H	CF ₃	OH
I-620	2-methylphenyl	H	Me	Me	H	H	CF ₃	OH
I-621	4-methylphenyl	H	Me	Me	H	H	CF ₃	OH
I-622	2-fluorophenyl	H	Me	Me	H	H	CF ₃	OH
I-623	3-fluorophenyl	H	Me	Me	H	H	CF ₃	OH
I-624	4-fluorophenyl	H	Me	Me	H	H	CF ₃	OH
I-625	2-chlorophenyl	H	Me	Me	H	H	CF ₃	OH
I-626	4-chlorophenyl	H	Me	Me	H	H	CF ₃	OH
I-627	2-bromophenyl	H	Me	Me	H	H	CF ₃	OH

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)								
Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
5	I-628	2-iodophenyl	H	Me	Me	H	CF ₃	OH
I-629	3-cyanophenyl	H	Me	Me	H	H	CF ₃	OH
I-630	4-cyanophenyl	H	Me	Me	H	H	CF ₃	OH
10	I-631	2-nitrophenyl	H	Me	Me	H	CF ₃	OH
I-632	3-nitrophenyl	H	Me	Me	H	H	CF ₃	OH
I-633	4-nitrophenyl	H	Me	Me	H	H	CF ₃	OH
15	I-634	2-trifluoromethylphenyl	H	Me	Me	H	CF ₃	OH
I-635	4-trifluoromethylphenyl	H	Me	Me	H	H	CF ₃	OH
I-636	4-trifluoromethoxyphenyl	H	Me	Me	H	H	CF ₃	OH
20	I-637	2,3-difluorophenyl	H	Me	Me	H	CF ₃	OH
I-638	2,4-difluorophenyl	H	Me	Me	H	H	CF ₃	OH
I-639	2,5-difluorophenyl	H	Me	Me	H	H	CF ₃	OH
25	I-640	2,6-difluorophenyl	H	Me	Me	H	CF ₃	OH
I-641	2,4-dichlorophenyl	H	Me	Me	H	H	CF ₃	OH
I-642	2,6-dichlorophenyl	H	Me	Me	H	H	CF ₃	OH
I-643	3,4-dichlorophenyl	H	Me	Me	H	H	CF ₃	OH
30	I-644	2-chloro-4-nitrophenyl	H	Me	Me	H	CF ₃	OH
I-645	2-chloro-4-fluorophenyl	H	Me	Me	H	H	CF ₃	OH
I-696	2-chloro-6-fluorophenyl	H	Me	Me	H	H	CF ₃	OH
35	I-647	4-chloro-2-fluorophenyl	H	Me	Me	H	CF ₃	OH
I-648	4-chloro-2-nitrophenyl	H	Me	Me	H	H	CF ₃	OH
I-649	2,3,6-trifluorophenyl	H	Me	Me	H	H	CF ₃	OH
40	I-650	pyridin-2-yl	H	Me	Me	H	CF ₃	OH
I-651	pyridin-3-yl	H	Me	Me	H	H	CF ₃	OH
I-652	2-fluoropyridin-3-yl	H	Me	Me	H	H	CF ₃	OH
I-653	2-chloropyridin-3-yl	H	Me	Me	H	H	CF ₃	OH
I-654	2-chloropyridin-5-yl	H	Me	Me	H	H	CF ₃	OH
I-655	2-methylthiopyridin-3-yl	H	Me	Me	H	H	CF ₃	OH
45	I-656	pyrazin-2-yl	H	Me	Me	H	CF ₃	OH
I-657	furan-2-yl	H	Me	Me	H	H	CF ₃	OH
I-658	thiophen-2-yl	H	Me	Me	H	H	CF ₃	OH
I-659	phenyl	F	Me	Me	H	H	CF ₃	Cl
50	I-660	2-methylphenyl	F	Me	Me	H	CF ₃	Cl
I-661	4-methylphenyl	F	Me	Me	H	H	CF ₃	Cl
I-662	2-fluorophenyl	F	Me	Me	H	H	CF ₃	Cl
I-663	3-fluorophenyl	F	Me	Me	H	H	CF ₃	Cl
55	I-664	4-fluorophenyl	F	Me	Me	H	CF ₃	Cl

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)								
Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
5	1-665	2-chlorophenyl	F	Me	Me	H	H	CF ₃ Cl
10	1-666	4-chlorophenyl	F	Me	Me	H	H	CF ₃ Cl
I-667	2-bromophenyl	F	Me	Me	H	H	CF ₃ Cl	
15	1-668	2-iodophenyl	F	Me	Me	H	H	CF ₃ Cl
20	1-669	3-cyanophenyl	F	Me	Me	H	H	CF ₃ Cl
I-670	4-cyanophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-671	2-nitrophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-672	3-nitrophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-673	4-nitrophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-674	2-trifluoromethylphenyl	F	Me	Me	H	H	CF ₃ Cl	
I-675	4-trifluoromethylphenyl	F	Me	Me	H	H	CF ₃ Cl	
I-676	4-trifluoromethoxyphenyl	F	Me	Me	H	H	CF ₃ Cl	
I-677	2,3-difluorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-678	2,4-difluorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-679	2,5-difluorophenyl	F	Me	Me	H	H	CF ₃ Cl	
25	1-680	2,6-difluorophenyl	F	Me	Me	H	H	CF ₃ Cl
I-681	2,4-dichlorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-682	2,6-dichlorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-683	3,4-dichlorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-684	2-chloro-4-nitrophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-685	2-chloro-4-fluorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-686	2-chloro-6-fluorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-687	4-chloro-2-fluorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-688	4-chloro-2-nitrophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-689	2,3,6-trifluorophenyl	F	Me	Me	H	H	CF ₃ Cl	
I-690	pyridin-2-yl	F	Me	Me	H	H	CF ₃ Cl	
I-691	pyridin-3-yl	F	Me	Me	H	H	CF ₃ Cl	
I-692	2-fluoropyridin-3-yl	F	Me	Me	H	H	CF ₃ Cl	
I-693	2-chloropyridin-3-yl	F	Me	Me	H	H	CF ₃ Cl	
I-694	2-chloropyridin-5-yl	F	Me	Me	H	H	CF ₃ Cl	
I-695	2-methylthiopyridin-3-yl	F	Me	Me	H	H	CF ₃ Cl	
I-696	pyrazin-2-yl	F	Me	Me	H	H	CF ₃ Cl	
I-697	furan-2-yl	F	Me	Me	H	H	CF ₃ Cl	
I-698	thiophen-2-yl	F	Me	Me	H	H	CF ₃ Cl	
I-699	2-fluorophenyl	H	H	H	MeSO ₂	Br	CF ₃ OH	
I-700	2-fluorophenyl	H	H	H	MeSO ₂	Br	CF ₃ Cl	
55	I-701	2-fluorophenyl	F	H	H	MeSO ₂	Br	CF ₃ OH

(continued)

(X ₂ a, X ₃ a, X ₄ a, Y ₂ a, Y ₄ a = a hydrogen atom, G ₁ a, G ₂ a = an oxygen atom, R _a = a trifluoromethyl group)								
Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
I-702	2-fluorophenyl	F	H	H	MeSO ₂	Br	CF ₃	Cl
I-703	2-fluorophenyl	H	Me	H	MeSO ₂	Br	CF ₃	OH
I-704	2-fluorophenyl	H	Me	H	MeSO ₂	Br	CF ₃	Cl
I-705	2-fluorophenyl	F	Me	H	MeSO ₂	Br	CF ₃	OH
I-706	2-fluorophenyl	F	Me	H	MeSO ₂	Br	CF ₃	Cl
I-707	2-fluorophenyl	H	Me	Me	MeSO ₂	Br	CF ₃	OH
I-708	2-fluorophenyl	H	Me	Me	MeSO ₂	Br	CF ₃	Cl
I-709	2-fluorophenyl	F	Me	Me	MeSO ₂	Br	CF ₃	OH
I-710	2-fluorophenyl	F	Me	Me	MeSO ₂	Br	CF ₃	Cl
I-711	2-fluorophenyl	H	H	H	n-Pr	I	CF ₃	OH
I-712	2-fluorophenyl	H	H	H	n-Pr	I	CF ₃	Cl
I-713	2-fluorophenyl	F	H	H	n-Pr	I	CF ₃	OH
I-714	2-fluorophenyl	F	H	H	n-Pr	I	CF ₃	Cl
I-715	2-fluorophenyl	H	Me	H	n-Pr	I	CF ₃	OH
I-716	2-fluorophenyl	H	Me	H	n-Pr	I	CF ₃	Cl
I-717	2-fluorophenyl	F	Me	H	n-Pr	I	CF ₃	OH
I-718	2-fluorophenyl	F	Me	H	n-Pr	I	CF ₃	Cl
I-719	2-fluorophenyl	H	Me	Me	n-Pr	I	CF ₃	OH
I-720	2-fluorophenyl	H	Me	Me	n-Pr	I	CF ₃	Cl
I-721	2-fluorophenyl	F	Me	Me	n-Pr	I	CF ₃	OH
I-722	2-fluorophenyl	F	Me	Me	n-Pr	I	CF ₃	Cl
I-723	2-fluorophenyl	H	H	H	H	H	C ₂ F ₅	OH
I-724	2-fluorophenyl	H	H	H	H	H	C ₂ F ₅	Cl
I-725	2-fluorophenyl	F	H	H	H	H	C ₂ F ₅	OH
I-726	2-fluorophenyl	F	H	H	H	H	C ₂ F ₅	Cl
I-727	2-fluorophenyl	H	Me	H	H	H	C ₂ F ₅	OH
I-72B	2-fluorophenyl	H	Me	H	H	H	C ₂ F ₅	Cl
I-729	2-fluorophenyl	F	Me	H	H	H	C ₂ F ₅	OH
I-730	2-fluorophenyl	F	Me	H	H	H	C ₂ F ₅	Cl
I-731	2-fluorophenyl	H	Me	Me	H	H	C ₂ F ₅	OH
I-732	2-fluorophenyl	H	Me	Me	H	H	C ₂ F ₅	Cl
I-733	2-fluorophenyl	F	Me	Me	H	H	C ₂ F ₅	OH
I-734	2-fluorophenyl	F	Me	Me	H	H	C ₂ F ₅	Cl
I-35	2-fluorophenyl	H	H	H	H	H	CF ₃	Br
I-736	2-fluorophenyl	H	H	H	H	H	CF ₃	Br
I-737	2-fluorophenyl	F	H	H	H	H	CF ₃	Br
I-738	2-fluorophenyl	F	H	H	H	H	CF ₃	Br

(continued)

$(X_2a, X_3a, X_4a, Y_2a, Y_4a = a \text{ hydrogen atom}, G_1a, G_2a = \text{an oxygen atom}, R_a = \text{a trifluoromethyl group})$								
Comp. No.	Q ₁ a	X ₁ a	R ₁ a	R ₂ a	Y ₁ a	Y ₅ a	R _b	R _c
I-739	2-fluorophenyl	H	Me	H	H	H	CF ₃	Br
I-740	2-fluorophenyl	H	Me	H	H	H	CF ₃	Br
I-791	2-fluorophenyl	F	Me	H	H	H	CF ₃	Br
I-742	2-fluorophenyl	F	Me	H	H	H	CF ₃	Br
I-793	2-fluorophenyl	H	Me	Me	H	H	CF ₃	Br
I-744	2-fluorophenyl	H	Me	Me	H	H	CF ₃	Br
I-795	2-fluorophenyl	F	Me	Me	H	H	CF ₃	Br
I-796	2-fluorophenyl	F	Me	Me	H	H	CF ₃	Br

[0151] Hereinbelow, Table 11 and Table 12 represent the properties of the compounds represented by Formulae (1), (6), (8), (11) and (13). The ¹H-NMR chemical shift values represented therein are based on tetramethylsilane as the internal standard substance, if not described otherwise.

[Table 11]

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)	Chemical Structure of Compound 1									
1	(CDCl ₃) δ 2.36(6H, s), 7.36(2H, s), 7.51-7.65(5H, m), 7.73(1H, d, J = 7.8Hz), 7.86(1H, d, J = 7.8Hz), 7.89(2H, d, J = 7.8Hz), 8.01(1H, s), 8.33(1H, s).										
2	δ 7.52-7.63(4H, m), 7.77(1H, d, J = 7.8Hz), 7.98-8.09(5H, m), 8.39(1H, s), 10.48(1H, s), 10.59(1H, s).										
3	δ 7.32-7.39(2H, m), 7.54-7.63(2H, m), 7.67-7.72(1H, m), 7.77(1H, d, J = 7.8Hz), 7.98(1H, d, J = 7.8Hz), 8.03(2H, s), 8.34(1H, s), 10.61(1H, s), 10.65(1H, s).										
4	δ 7.53-7.63(4H, m), 7.79(1H, d, J = 8.3Hz), 7.99-8.02(2H, m), 8.08(1H, dd, J = 2.0,8.3Hz), 8.17(2H, s), 8.39(1H, d, J = 2.0Hz), 10.50(1H, s), 10.63(1H, s).										
5	δ 7.33-7.40(2H, m), 7.54-7.63(2H, m), 7.68-7.72(1H, m), 7.79(1H, d, J = 7.8Hz), 7.99(1H, d, J = 7.8Hz), 8.17(2H, s), 8.35(1H, s), 10.65(1H, s), 10.67(1H, s).										
6	δ 7.52-7.62(4H,m), 7.75(1H,d,J=7.8Hz), 7.91(2H,s), 7.97(2H,d,J=7.8Hz), 8.04(1H,d,J=7.8Hz), 8.36(1H,s), 10.50(1H,s),10.61(1H,s).										
7	δ 7.53-7.64(4H, m), 7.78(1H, d, J = 7.8Hz), 7.99-8.01(2H, m), 8.06(2H, s), 8.09(1H, dd, J = 2.0,7.8Hz), 8.39(1H, s), 10.51(1H, s), 10.63(1H, s).										
8	δ 7.33-7.40(2H, m), 7.55-7.63(2H, m), 7.68-7.72(1H, m), 7.78(1H, d, J = 7.8Hz), 7.99(1H, d, J = 7.8Hz), 8.05(2H, s), 8.34(1H, s), 10.65(1H, s), 10.69(1H, s).										
9	δ 2.29(6H, s), 7.47(2H, s), 7.51-7.62(4H, m), 7.75(1H, d, J = 7.8Hz), 7.97-8.00(2H, m), 8.03-8.06(1H, m), 8.36(1H, s), 10.00(1H, s), 10.45(1H, s).										

(continued)

comp. No.	1H-NMR (DMSO-d ₆ , ppm)
5 10 11 12 13 14 15 16 17 18 19 20 25 26 30 35 36 37 38 39 40 45 50 55 10 11 12 13 14 15 16 17 18 19 20 22 23 26 28 29 30 31 32 33 34	δ 2.37 (6H, s), 7.34 (2H, s), 7.46-7.57(4H, m), 7.75 (1H, d, J = 7.8Hz), 7.98-8.01 (2H, m), 8.12 (1H, d, J = 7.3Hz), 8.34 (1H, s), 8.87 (1H, s), 9.66 (1H, s). (CDCl ₃) δ 2.35 (6H, s), 252 (3H, s), 7.26-7.31 (2H, m), 7.36 (2H, s), 7.37-7.42 (1H, m), 7.49-7.54 (2H, m), 7.68-7.73 (3H, m), 7.79 (1H, d, J = 7.3Hz), 8.30 (1H, s). δ 2.30 (6H, s), 2.41 (3H, s), 7.42-7.48 (4H, m), 7.54 (1H, d, J = 7.94Hz), 7.74-7.82 (3H, m), 8.07 (1H, d, J = 7.94Hz), 8.35 (1H, s), 9.99 (1H, s), 10.43 (1H, s). δ 2.30 (6H, s), 2.40 (3H, s), 7.35 (2H, d, J = 8.3Hz), 7.45 (2H, s), 7.53 (1H, t, J = 7.8Hz), 7.74 (1H, d, J = 7.81Hz), 7.92 (2H, d, J = 8.3Hz), 8.07 (1H, d, J = 7.8Hz), 8.36 (1H, s), 9.98 (1H, s), 10.39 (1H, s). δ 1.18 (3H, t, J = 7.6Hz), 2.30 (6H, s), 2.76 (2H, q, J = 7.6Hz), 7.30-7.37 (2H, m), 7.42-7.46 (4H, m), 7.52 (1H, t, J = 8.0Hz), 7.81 (1H, d, J = 8.0Hz), 7.96 (1H, d, J = 8.0Hz), 8.35 (1H, s), 9.98 (1H, s), 10.56(1H, s). δ 1.22 (3H, t, J = 7.6Hz), 2.31 (6H, s), 2.69 (2H, q, J = 7.6Hz), 7.39 (2H, d, J = 8.3Hz), 7.45 (2H, t, J = 7.9Hz), 7.53 (2H, d, J=8.3Hz), 7.74 (1H, d, J = 7.9Hz), 7.94 (1H, d, J = 8.3Hz), 8.07 (1H, d, J = 7.9Hz), 8.36 (1H, s), 9.99 (1H, s), 10.40 (1H, s). δ 2.30 (6H, s), 7.33-7.76 (8H, m). 7.97 (1H, d, J = 8.30Hz), 8.30 (1H, s), 10.01 (1H, s), 10.65 (1H, s). δ 2.30 (6H, s), 7.45-7.64 (5H, m), 7.76-8.05 (3H, m), 8.06 (1H, d, J = 8.3Hz), 8.35 (1H, s), 10.00 (1H, s), 10.54(1H,s). δ 2.30 (6H, s). 7.37-7.45 (4H, m), 7.54 (1H, t, J = 7.8Hz). 7.76 (1H, d, J = 7.8Hz), 8.05-8.11 (3H, m). 8.34 (1H, s), 10.00 (1H, s), 10.49 (1H, s). (CDCl ₃) δ 2.35 (6H, s), 7.36 (2H, s), 7.37-7.54 (4H, m), 7.69-7.83 (4H, m). 8.13 (1H, s), 8.33 (1H, s). δ 2.30 (6H, s), 7.45 (2H, s). 7.56 (1H, dd, J = 7.8,6.8Hz), 7.63 (1H, d, J = 8.8Hz), 7.72 (1H, d, J = 8.8Hz), 7.77 (1 H, d, J = 6.8Hz), 7.94 (1 H, d, J = 8.3Hz), 8.03 (1 H, d, J = 8.8Hz), 8.17 (1 H, d, J = 7.8Hz), 8.34 (1 H, s), 9.99 (1H, s), 10.54 (1H, s). (CDCl ₃)δ 2.36 (6H, s), 7.34-7.38 (3H, m), 7.42-7.46 (1H, m), 7.53 (1H, t, J = 7.8Hz), 7.62 (1H, s), 7.65-7.68 (2H, m), 7.73-7.75 (1H, m), 7.82-7.84 (1H, m), 7.89 (1H, s), 8.32 (1H, s). (CDCl ₃) δ 2.36 (6H, s), 7.19 (1H, dt, J = 2.0,7.8Hz), 7.36 (2H, s), 7.46 (1H, t, J = 7.8Hz), 7.52-7.57 (3H, m), 7.66 (1H, s), 7.74 (1H, d, J = 7.8Hz), 7.85 (1H, d, J = 7.8Hz), 7.94 (1H, d, J = 7.8Hz), 8.31 (1H, s) δ 2.36 (6H, s), 7.33 (2H, s), 7.48 (1H, t, J = 7.8Hz), 7.75-7.84 (5H, m), 8.14 (1H, d, J = 7.8Hz), 8.31 (1H, s), 9.20 (1H, s), 10.04 (1H, s). δ 2.30 (6H, s), 7.45 (2H, s), 7.57 (1H, d, J = 7.8Hz), 7.75-7.80 (2H, m), 8.06-8.11 (2H, m), 8.29 (1H, d, J = 7.8Hz), 8.34 (1H, s), 8.46 (1H, s), 10.02 (1H, s), 10.65 (1H, s). δ 2.30 (6H, s), 7.45 (2H, s), 7.56 (1H, t, J = 7.8Hz), 7.79 (1H, d, J = 7.8Hz), 8.04-8.06 (3H, m), 8.16 (2H, d, J = 8.3Hz), 8.36 (1H, s), 10.02 (1H, s), 10.72 (1H, s). δ 2.30 (6H, s), 7.45 (2H, s), 7.56 (1H, d, J = 7.8Hz), 7.76-7.81 (3H, m), 7.88-7.94 (2H, m), 8.17 (1H, d, J = 7.8Hz), 8.24 (1H, s), 10.02 (1H, s), 10.90 (1H, s). δ 2.32(6H, s), 7.46(2H, s), 7.58(1H, t, J = 7.8Hz), 7.80-7.89(2H, m), 8.11(1H, d, J = 7.8Hz), 8.36 (1H, s), 8.44-8.48(2H, m), 8.86(1H, s), 10.04(1H, s), 10.83(1H, s). δ 2.31 (6H, s), 7.45 (2H, s), 7.57 (1H, t, J = 8.1Hz), 7.80 (1H, d, J = 8.1Hz), 8.08 (1H, d, J = 8.1Hz), 8.24 (1H, s), 8.36-8.41 (4H, m), 10.01 (1H, s), 10.79 (1H, s). δ 2.30 (6H, s), 6.39 (2H, s), 6.58-6.62 (1H, m), 6.76 (1H, dd, J = 1.0,8.3Hz), 7.19-7.24 (1H, m), 7.45 (2H, s), 7.51 (1H, t, J=7.8Hz), 7.66-7.73 (2H, m), 7.94-7.97 (1H, m), 8.30 (1H, d, J = 2.0Hz), 9.96 (1H, s), 10.20 (1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 35	δ 2.30 (6H, s), 6.53-6.86 (1H, m), 7.20-7.21 (4H, m), 7.45 (2H, s), 7.52 (1H, t, J = 7.8Hz), 7.73 (1H, d, J = 7.8Hz), 8.02 (1H, d, J = 7.8Hz), 8.35 (1H, s), 9.96 (1H, s), 10.32 (1H, s).
10 37	(CDCl ₃) δ 2.34 (6H, s), 7.35 (2H, s), 7.51 (1H, t, J = 7.8Hz), 7.62-7.80 (8H, m), 8.25 (1H, s).
15 39	δ 2.31(6H, s), 7.45(2H, s), 7.57(1H, t, J = 7.8Hz), 7.79(1H, d, J = 7.8Hz), 7.94(2H, d, J = 8.3Hz), 8.07(1H, d, J = 7.8Hz), 8.20(2H, d, J = 8.3Hz), 8.36(1H, s), 10.01(1H, s), 10.70(1H, s).
20 40	δ 2.30 (6H, s), 6.96-7.01 (2H, m), 7.43-7.48 (3H, m), 7.56 (1H, t, J = 8.3Hz), 7.78 (1H, d, J = 8.3Hz), 7.97-8.00 (2H, m), 8.29 (1H, s), 10.01 (1H, s), 10.61 (1H, s).
25 41	δ 2.30(6H, s), 3.90(3H, s), 7.05-7.10(1H, m), 7.19(1H, d, J=8.3Hz), 7.45(2H, s), 7.49-7.54(2H, m), 7.63(1H, dd, J=2.0, 7.8Hz), 7.72(1H, d, J = 7.8Hz), 7.96(1H, d, J = 7.8Hz), 8.33(1H, s), 9.98 (1H, s), 10.33(1H, s).
30 45	δ 1.33 (9H, s), 2.31 (6H, s), 7.45 (2H, s), 7.53 (1H, t, J = 7.8Hz), 7.54 (2H, d, J = 8.3Hz), 7.74 (1H, d, J = 7.8Hz), 7.94 (2H, d, J = 8.3Hz), 8.06 (1H, d, J = 7.8Hz), 8.36 (1H, s), 9.99 (1H, s), 10.40 (1H, s).
35 46	δ 2.30 (6H, s), 2.98 (6H, s), 6.93-6.95 (1H, m), 7.25-7.35 (3H, m), 7.45 (2H, s), 7.53 (1H, t, J = 7.8Hz), 7.74 (1H, d, J = 7.8Hz), 8.06 (1H, d, J = 7.8Hz), 8.35 (1H, s), 9.99 (1H, s), 10.35 (1H, s).
40 47	δ 2.30 (6H, s), 3.01 (6H, s), 6.77 (2H, d, J = 9.3Hz), 7.45 (2H, s), 7.50 (1H, t, J = 7.8Hz), 7.69 (1H, d, J = 7.8Hz), 7.91 (2H, d, J = 9.3Hz), 8.06 (1H, d, J = 7.8Hz), 8.33 (1H, s), 9.96 (1H, s), 10.09 (1H, s).
45 48	δ 2.31(6H, s), 7.45(2H, s), 7.53-7.60(3H, m), 7.77(1H, d, J = 7.3Hz), 8.06(1H, d, J = 8.3Hz), 8.13(2H, d, J = 8.3Hz), 8.35(1H, s), 10.01(1H, s), 10.59(1H, s).
50 52	δ 2.21 (3H, s), 2.30 (6H, s); 7.27 (1H, d, J = 8.3Hz), 7.39-7.44 (1H, m), 7.45 (2H, s), 7.50-7.62 (2H, m), 7.70-7.52 (2H, m), 7.92 (1H, d, J = 7.8Hz), 8.29 (1H, s), 9.99 (1H, s), 10.57 (1H, s).
55 54	δ 2.30 (6H, s), 3.91 (3H, s), 7.45 (2H, s), 7.56 (1H, t, J = 7.8Hz), 7.78 (1H, d, J = 7.8Hz), 8.03-8.15 (5H, m), 8.36 (1H, s), 10.01 (1H, s), 10.67 (1H, s).
60 56	δ 2.27 (6H, s), 2.30 (6H, s), 7.18-7.22 (1H, m), 7.26-7.30 (2H, m), 7.45 (2H, s), 7.52 (1H, t, J = 7.8Hz), 7.72 (1H, d, J = 7.8Hz), 7.95 (1H, d, J = 7.8Hz), 8.36 (1H, s), 9.98 (1H, s), 10.52 (1H, s).
65 57	δ 2.30 (6H, s), 2.33 (3H, s), 2.38 (3H, s), 7.11-7.13 (2H, m), 7.40 (1H, d, J = 7.8Hz), 7.44 (2H, s), 7.51 (1H, t, J = 7.8Hz), 7.72 (1H, d, J = 7.8Hz), 7.95 (1H, d, J = 8.8Hz), 8.34 (1H, s), 9.98 (1H, s), 10.43 (1H, s).
70 58	δ 2.30 (12H, s), 7.12 (2H, d, J = 7.8Hz), 7.23-7.27 (1H, m), 7.45 (2H, s), 7.52 (1H, t, J = 8.3Hz), 7.75 (1H, d, J = 8.3Hz), 7.94-7.99 (1H, m), 8.35 (1H, s), 10.00 (1H, s), 10.61 (1H, s).
75 59	δ 2.30 (6H, s), 7.34-7.40 (1H, m), 7.45 (2H, s), 7.50-7.58 (2H, m), 7.60-7.68 (1H, m), 7.77 (1H, d, J = 7.8Hz), 7.96 (1H, d, J = 8.3Hz), 8.31 (1H, s), 10.02 (1H, s), 10.78 (1H, s).
80 60	δ 2.30 (6H, s), 7.22-7.28 (1H, m), 7.42-7.48 (3H, m), 7.53-7.57 (1H, m), 7.75-7.82 (2H, m), 7.96 (1H, d, J = 7.8Hz), 8.30 (1H, s), 10.01 (1H, s), 10.65 (1H, s).
85 61	δ 2.30 (6H, s), 7.45 (2H, s), 7.46-7.49 (2H, m), 7.53-7.59 (2H, m), 7.77 (1H, d, J = 7.8Hz), 7.96 (1H, d, J = 8.3Hz), 8.30 (1H, s), 10.02 (1H, broad), 10.72 (1H, broad).
90 62	δ 2.30 (6H, s), 7.25-7.30 (2H, m), 7.45 (2H, s), 7.54-7.65 (2H, m), 7.77 (1H, d, J = 7.8Hz), 7.93 (1H, d, J = 7.8Hz), 8.29 (1H, s), 10.03 (1H, s), 11.04 (1H, s).
95 66	δ 2.30(6H, s), 7.45(2H, s), 7.52-7.62(2H, m), 7.66(1H, d, J = 8.3Hz), 7.75-7.80 (2H, m), 7.94 (1H, d, J = 7.8Hz), 8.30(1H, s), 10.02(1H, s), 10.77(1H, s).
100 68	δ 2.30 (6H, s), 7.45 (2H, s), 7.50-7.62 (4H, m), 7.78 (1H, d, J = 7.8Hz), 7.94 (1H, d, J = 7.8Hz), 8.28 (1H, s), 10.03 (1H, s), 10.99 (1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 69	δ 2.30(6H, s), 7.45(2H, s), 7.56(1H, t, J = 7.8Hz), 7.79(1H, d, J = 7.8Hz), 7.85(1H, d, J = 8.3Hz), 7.97-8.00(1H, m), 8.05-8.08(1H, m), 8.27(1H, d, J = 2.0Hz), 8.33(1H, s), 10.00(1H, s), 10.61 (1H, s).
10 70	δ 2.74(6H, s), 7.34(2H, s), 7.52(1H, t, J = 7.8Hz), 7.81(1H, d, J = 7.8Hz), 7.93(1H, d, J = 8.3Hz), 8.13-8.15(2H, m), 8.58(1H, d, J = 8.3Hz), 8.94(1H, s), 9.27(1H, s), 10.67(1H, s).
15 71	(CDCl ₃) δ 1.6-2.4(6H, broad-s), 6.5-7.7(3H, broad). 7.8-8.0(4H, broad), 8.10(1H, broad-s), 8.28 (1H, d, J = 8.8Hz).
20 72	δ 2.30 (6H, s), 3.78 (6H, s), 6.66-6.75 (2H, m), 7.34-7.50 (4H, m), 7.67 (1H, d, J = 7.8Hz), 7.91 (1H, d, J = 7.8Hz), 8.34 (1H, s), 9.98 (1H, s), 10.44 (1H, s).
25 73	2.30 (6H, s), 3.83 (6H, s), 6.73 (1H, t, J = 2.4Hz), 7.15 (2H, d, J = 2.4Hz), 7.45 (2H, s), 7.54 (1H, t, J = 8.3Hz), 7.75 (1H, d, J = 8.3Hz), 8.06 (1H, d, J = 8.3Hz), 8.33 (1H, s), 9.99 (1H, s), 10.39 (1H, s).
30 74	(CDCl ₃) δ 2.34(6H, s), 2.68(3H, s), 7.36(2H, s), 7.55(1H, t, J = 7.8Hz), 7.62(1H, s), 7.72(1H, d, J = 7.8Hz), 7.81(1H, d, J = 8.3Hz), 7.88(1H, s), 7.92(1H, d, J = 7.8Hz), 8.05(1H, d, J = 8.3Hz), 8.17(1H, s), 8.26(1H, s).
35 75	δ 2.30 (6H, s), 5.22 (2H, broad-s), 6.67-6.72 (1H, m), 6.78-6.81 (1H, m), 6.97-7.02 (1H, m), 7.45 (2H, s), 7.52 (1H, t, J = 7.8Hz), 7.72 (1H, d, J = 7.8Hz), 7.94 (1H, d, J = 7.8Hz), 8.32 (1H, s), 9.98 (1H, s), 10.46 (1H, s).
40 77	δ 2.30 (6H, s), 7.45 (2H, s), 7.58 (1H, t, J = 7.8Hz), 7.70 (1H, t, J = 8.8Hz), 7.80 (1H, d, J = 7.8Hz), 7.99 (1H, d, J = 7.8Hz), 8.29 (1H, s), 8.45-8.50 (1H, m), 8.57-8.60 (1H, m), 10.03 (1H, s), 10.91 (1H, s).
45 81	δ 2.30 (6H, s), 7.56 (1H, t), 7.73-7.80 (6H, m), 7.92 (1H, d, J = 7.81Hz), 8.22 (1H, s), 10.03 (1H, s), 11.05 (1H, s).
50 82	δ 2.30 (6H, s), 7.45 (2H, s), 7.57 (1H, t, J = 7.8Hz), 7.80 (1H, d, J = 7.8Hz), 7.92-7.96 (2H, m), 8.29-8.45 (2H, m), 8.45 (1H, m), 10.03 (1H, s), 10.98 (1H, s).
83	δ 2.28 (6H, s), 7.33-7.38 (1H, m), 7.43 (2H, s), 7.53 (1H, t, J = 7.9Hz), 7.58 (1H, d, J = 2.4Hz), 7.61-7.71 (1H, m), 7.75 (1H, d, J = 7.9Hz), 7.93 (1H, d, J = 7.9Hz), 8.28 (1H, s), 9.98 (1H, s), 10.71 (1H, s).
84	δ 2.30 (6H, s), 7.38-7.48 (4H, m), 7.54-7.60 (2H, m), 7.78 (1H, d, J = 7.8Hz), 7.93 (1H, d, J = 7.8Hz), 8.28 (1H, s), 10.03 (1H, s), 11.03 (1H, s).
86	δ 2.30 (6H, s), 7.42-7.47 (3H, m), 7.55 (1H, t, J = 8.0Hz), 7.64 (1H, d, J = 2.0Hz), 7.66-7.77 (2H, m), 7.96 (1H, d, J = 8.0Hz), 8.29 (1H, s), 10.01 (1H, s), 10.69 (1H, s).
87	δ 2.30 (6H, s), 7.45 (2H, s), 7.56 (1H, t, J = 7.6Hz), 7.79 (1H, d, J = 7.9Hz), 7.87 (1H, d, J = 7.9Hz), 7.92 (1H, dd, J = 8.2, 1.6Hz), 8.00 (1H, dd, J = 8.2, 1.6Hz), 8.22 (1H, t, J = 1.6Hz), 8.29 (1H, d, J = 1.6Hz), 10.03 (1H, s), 10.94 (1H, s).
88	(CDCl ₃) δ 2.37(6H, s), 4.06(3H, s), 7.37(2H, s), 7.44(1H, d, J = 9.7Hz), 7.52(1H, s), 7.58(1H, t, J = 7.8Hz), 7.70(1H, s), 7.74(1H, d, J = 7.8Hz), 7.93(1H, s), 7.95(1H, s), 8.02(1H, s), 8.26(1H, s).
89	(CDCl ₃) δ 2.37(6H, s), 4.22(3H, s), 7.37(2H, s), 7.55(1H, t, J = 7.8Hz), 7.56(1H, s), 7.72(1H, d, J = 7.8Hz), 7.94-7.97(2H, m), 8.00(1H, d, J = 7.8Hz), 8.28(1H, s), 8.47(1H, d, J = 8.8Hz), 9.83 (1H, s).
91	δ 2.25 (6H, s), 2.27 (3H, s), 2.29 (6H, s), 6.94 (2H, s), 7.45 (2H, s), 7.51 (1H, t, J = 7.8Hz), 7.73 (1H, d, J = 7.8Hz), 7.94 (1H, d, J = 7.8Hz), 8.34 (1H, s), 9.97 (1H, s), 10.53 (1H, s).
92	δ 2.33 (6H, s), 7.32-7.40 (1H, m), 7.45 (2H, s), 7.58 (1H, t, J = 8.06Hz), 7.67-7.75 (1H, m), 7.80 (1H, d, J = 7.81Hz), 7.92 (1H, d, J = 8.29Hz), 8.27 (1H, s), 10.04 (1H, s), 11.14 (1H, s).

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(continued)

	comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5	95	δ 2.30 (6H, s), 7.45 (2H, s), 7.59 (1H, t, J = 7.8Hz), 7.83 (1H, d, J = 7.8Hz), 7.91-7.94 (1H, dd, J = 1.5, 7.8Hz), 8.25 (1H, d, J = 1.5Hz), 10.06 (1H, s), 11.27 (1H, s).
10	96	δ 2.30 (6H, s), 7.28-7.55 (10H, m), 7.57-7.61 (2H, m), 7.69 (1H, d, J = 7.8Hz), 7.74 (1H, d, J = 7.8Hz), 8.13 (1H, s), 9.94 (1H, s), 10.47 (1H, s).
15	97	δ 2.32 (6H, s), 7.41-7.57 (6H, m), 7.72-7.82 (3H, m), 7.85-7.88 (2H, m), 8.09-8.13 (3H, m), 8.40 (1H, s), 10.01 (1H, s), 10.53 (1H, s).
20	98	δ 2.31(6H, s), 7.45(2H, s), 7.54-7.65(4H, m), 7.76-7.80(2H, m), 8.01-8.06(2H, m), 8.10(1H, d, J=8.3Hz), 8.21-8.23(1H, m), 8.43(1H, s), 10.01(1H, s), 10.80(1H, s).
25	99	δ 2.32(6H, s), 7.46(2H, s), 7.57(1H, t, J = 7.8Hz), 7.61-7.72(2H, m), 7.78(1H, d, J = 7.8Hz), 7.99-8.17(5H, m), 8.41(1H, t, J = 2.0Hz), 8.65(1H, s), 10.01(1H, s). 10.66(1H, s).
30	100	δ 2.31 (6H, s), 7.45 (2H, s), 7.55 (1H, t, J = 7.8Hz), 7.69-7.76 (2H, m), 8.07-8.14 (2H, m), 8.19 (1H, d, J = 7.8Hz), 8.54 (1H, s), 8.77 (1H, d, J = 4.9Hz), 9.99 (1H, s), 10.86 (1H, s).
35	101	δ 2.30 (6H, s), 7.45 (2H, s), 7.54-7.61 (2H, m), 7.78 (1H, d, J = 8.3Hz), 8.06 (1H, d, J = 7.3Hz), 8.32-8.35 (2H, m), 8.77-8.79 (1H, m), 9.14 (1H, d, J = 1.5Hz), 10.00 (1H, s), 10.66 (1H, s).
40	102	δ 2.30 (6H, s), 7.45 (2H, s), 7.57 (1H, t, J = 7.8Hz), 7.80 (1H, d, J = 7.8Hz), 7.91 (2H, d, J = 5.6Hz), 8.06 (1H, d, J = 7.8Hz), 8.35 (1H, s), 8.81 (2H, d, J = 5.6Hz), 10.01 (1H, s), 10.72 (1H, s).
45	103	δ 2.27 (3H, s), 2.30 (6H, s), 7.45 (2H, s), 7.54-8.07 (6H, m), 8.35 (1H, s), 10.02 (1H, s), 10.77 (1H, s).
50	105	δ 2.30 (6H, s), 7.45 (2H, s), 7.52-7.58 (2H, m), 7.78 (1H, d, J = 8.30Hz), 7.97 (1H, d, J = 8.29Hz), 8.26-8.31 (2H, m), 8.42 (1H, d, J = 4.39Hz), 10.02 (1H, s), 10.80 (1H, s).
55	106	δ 2.30 (6H, s), 7.45 (2H, s), 7.54-7.60 (2H, m), 7.77-7.81 (1H, m), 7.95 (1H, d, J = 7.8Hz), 8.10-8.13 (1H, m), 8.30 (1H, s), 8.54-8.59 (1H, m), 10.03 (1H, s), 10.88 (1H, s).
	108	δ 2.31 (6H, s), 7.45 (2H, s), 7.56 (1H, t, J = 7.8Hz), 7.78 (1H, d, J = 7.8Hz), 7.82 (1H, dd, J = 6.3, 2.4Hz), 8.11-8.16 (3H, m), 8.47 (1H, s), 10.01 (1H, s), 10.69 (1H, s).
	109	δ 2.31 (6H, s), 7.46 (2H, s), 7.57 (1H, t, J = 8.3Hz), 7.74 (1H, d, J = 8.3Hz), 7.80 (1H, d, J = 8.3Hz), 8.06 (1H, dd, J = 8.3, 1.7Hz), 8.34 (1H, t, J = 1.7Hz), 8.40(1H, dd, J = 8.3, 1.7Hz), 9.00 (1H, d, J = 1.7Hz), 10.02 (1H, s), 10.71 (1H, s).
	110	δ 2.31 (6H, s), 7.45 (2H, s), 7.56 (1H, d, J = 8.1Hz), 7.78 (1H, d, J = 8.1Hz), 7.86 (1H, d, J = 2.1Hz), 8.11 (1H, dd, J = 8.1, 2.1Hz), 8.19 (1H, d, J = 2.1Hz), 8.53 (1H, t, J = 2.1Hz), 8.75 (1H, d, J = 5.4Hz), 10.01 (1H, s), 10.96 (1H, s).
	111	(CDCl ₃) δ 2.36 (6H, s,), 7.34 (2H, s,), 7.47-8.94 (7H, m,), 9.63 (1H, s,), 10.73 (1H, s,).
	113	(CDCl ₃) δ 2.36 (6H, s,), 7.34-8.73 (15H, m, Ar,), 10.01 (1H, s,)
	114	δ 2.30 (6H, s), 2.42 (3H, s), 7.25-7.28(1H, m), 7.44 (2H, s), 7.55 (1H, t, J = 7.8Hz), 7.77 (1H, d, J = 7.8Hz), 7.94-7.97(2H, m), 8.30 (1H, s), 8.61 (1H, dd, J = 4.9, 1.5Hz), 10.00 (1H, s), 10.67 (1H, s).
	115	δ 2.29 (6H, s), 3.94 (3H, s), 4.06 (3H, s), 6.53 (1H, d, J = 8.3Hz), 7.44 (2H, s), 7.51 (1H, t, J = 7.9Hz), 7.72 (1H, d, J = 7.9Hz), 7.95 (1H, d, J = 7.9Hz), 8.12 (1H, d, J = 8.3Hz), 8.28 (1H, s), 9.96 (1H, s), 10.07 (1H, s).
	116	δ 2.29 (6H, s), 7.44 (2H, s), 7.57 (1H, t, J = 7.9Hz), 7.80 (1H, d, J = 7.9Hz), 8.05 (1H, d, J = 7.9Hz), 8.30 (1H, s), 8.67 (1H, d, J = 2.2Hz), 8.93 (1H, d, J = 2.2Hz), 10.01 (1H, s), 10.73 (1H, s).
	117	(CDCl ₃) δ 2.36 (6H, s), 7.37-8.50 (9H, m,), 8.97 (1H, s,)
	118	δ 2.28 (6H, s), 7.43 (2H, s), 7.56 (1H, t, J = 8.0Hz), 7.74-7.79 (2H, m), 7.92 (1H, d, J = 8.0Hz), 8.20 (1H, d, J = 8.3Hz), 8.25 (1H, s), 10.01 (1H, s). 10.88 (1H, s).
	119	(CDCl ₃) δ 2.36 (6H, s), 7.36-8.60 (10H, m,.)

(continued)

	comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5	120	δ 2.31 (6H, s), 7.46 (2H, s), 7.57 (1H, t, J=7.8Hz), 7.80 (1H, d, J=7.8Hz), 8.02 (1H, d, J=7.8Hz), 8.08 (2H, d, J=1.2Hz), 8.33 (1H, t, J=2.0Hz), 8.40 (2H, d, J=7.3Hz), 10.02 (1H, s), 10.63 (1H, s).
10	121	δ 2.30 (6H, s), 3.89 (3H, s), 6.11 (1H, dd, J=2.0,8.9Hz), 7.03 (1H, t, J=2.0Hz), 7.10 (1H, dd, J=2.0,8.9Hz), 7.45 (2H, s), 7.49 (1H, t, J=7.8Hz), 7.69 (1H, d, J=7.8Hz), 7.99 (1H, d, J=7.8Hz), 8.28 (1H, s), 9.95 (2H, s).
15	122	δ 2.31 (6H, s), 7.45 (2H, s), 7.57 (1H, t, J=7.8Hz), 7.78 (1H, d, J=7.8Hz), 8.11 (1H, d, J=7.8Hz), 8.53 (1H, s), 8.84 (1H, dd, J=1.5,2.4Hz), 8.95 (1H, d, J=2.4Hz), 9.33 (1H, d, J=1.5Hz), 10.00 (1H, s), 10.97 (1H, s).
20	124	δ 2.28 (6H, s), 7.44 (2H, s), 7.58 (1H, t, J=7.9Hz), 7.81 (1H, d, J=7.9Hz), 7.92 (1H, d, J=7.9Hz), 8.20 (1H, s), 9.43 (1H, s), 9.59 (1H, s), 10.03 (1H, s), 11.06 (1H, s).
25	125	δ 2.30 (6H, s), 7.45 (2H, s), 7.50-7.62 (4H, m), 7.78 (1H, d, J=7.8Hz), 7.94 (1H, d, J=7.8Hz), 8.28 (1H, s), 10.03 (1H, s), 10.99 (1H, s).
30	126	δ 2.30 (6H, s), 7.04 (1H, t, J=1.5Hz), 7.45 (2H, s), 7.53 (1H, t, J=8.0Hz), 7.74-7.82 (2H, m), 8.04 (1H, d, J=1.5Hz), 8.25 (1H, d, J=1.5Hz), 8.43 (1H, t, J=1.5Hz), 9.98 (1H, s), 10.14 (1H, s).
35	127	δ 1.86-1.91 (2H, m), 2.00-2.02 (1H, m), 2.19-2.29 (7H, m), 3.81-3.87 (1H, m), 3.98-4.03 (1H, m), 4.40-4.43 (1H, m), 7.44-7.50 (3H, m), 7.77 (1H, d, J=7.8Hz), 7.94 (1H, d, J=7.8Hz), 8.26 (1H, s), 9.89 (1H, s), 9.94 (1H, s).
40	128	(CDCl ₃) δ 2.02-2.10 (2H, m), 2.28 (6H, s), 3.15-3.22 (1H, m), 3.80-3.98 (4H, m), 7.44 (2H, s), 7.48 (1H, t, J=7.8 Hz), 7.68 (1H, t, J=7.8 Hz), 7.87 (1H, d, J=7.8 Hz), 8.16 (1H, s), 9.96 (1H, s), 10.3 (1H, s).
45	129	(CDCl ₃) δ 2.22(6H, s), 7.17-7.28(3H, m), 7.33-7.39(2H, m), 7.42-7.48(2H, m), 7.58-7.65(2H, m), 7.79(1H, dd, J = 1.5,8.3Hz), 7.91(1H, s), 827(1H, s), 8.51(1H, s).
50	130	(CDCl ₃) δ 1.48-2.17(6H, m), 2.34(6H, s), 3.52-3.60(1H, m), 3.92(1H, dd, J = 2.5,11.2Hz), 4.11-4.18(1H, m), 7.35(2H, s), 7.47(1H, t, J = 7.8Hz), 7.60(1H, broad), 7.69(1H, d, J = 7.8Hz), 7.77(1H, dd, J = 1.0,7.8Hz), 8.26(1H, s), 8.54(1H, s).
55	131	δ 1.97-2.07 (2H, m), 2.15-2.31 (9H, m), 2.97-3.07 (2H, m), 3.99-3.98 (2H, m), 7.46 (2H, s), 7.55 (1H, t, J = 8.0Hz), 7.65 (1H, d, J = 8.0Hz), 7.87 (1H, d, J = 8.0Hz), 8.20 (1H, s), 9.60 (1H, s), 9.91 (1H, s).
	132	(CDCl ₃) δ 2.35(6H, s), 7.16(1H, dd, J = 3,9,4.9Hz), 7.36(2H, s), 7.51(1H, t, J = 7.8Hz), 7.59(1H, dd, J = 1.0,4.9Hz), 7.67(1H, dd, J = 1.0,3.9Hz), 7.70-7.74(2H, m), 7.80-7.83(1H, m), 7.95 (1H, s), 8.27(1H, s).
	133	δ 2.30 (6H, s), 7.45 (2H, s), 7.54 (1H, t, J=8.0Hz), 7.67 (2H, d, J=2.4Hz), 7.75 (1H, d, J=7.8Hz), 8.07 (1H, d, J =7.8Hz), 8.31 (1H, s), 8.41 (1H, t, J =2.2Hz), 9.99 (1H, s), 10.28 (1H, s).
	134	δ 2.30 (6H, s), 2.47 (3H, s), 7.04 (1H, d, J =4.2Hz), 7.45 (2H, s), 7.52 (1H, t, J =7.8Hz), 7.69 (1H, d, J =4.2Hz), 7.74 (1H, d, J =7.8Hz), 7.93 (1H, d, J =7.8Hz), 8.27 (1H, s), 9.97 (1H, s), 10.17 (1H, s).
	135	δ 2.30 (6H, s), 7.45 (2H, s), 7.56 (1H, t, J=7.8Hz), 7.79 (1H, d, J=7.8Hz), 8.08 (1H, d, J=7.8Hz), 8.30 (1H, s), 8.71 (1H, d, J =2.0Hz), 8.74 (1H, d, J =2.0Hz), 10.01 (1H, s), 10.54 (1H, s).
	136	δ 2.30 (6H, s), 2.50 (3H, s), 6.94 (1H, d, J =3.4Hz), 7.45 (2H, s), 7.52 (1H, t, J =7.9Hz), 7.74 (1H, d, J =7.9Hz), 7.88 (1H, d, J =3.4Hz), 8.02 (1H, d, J =7.9Hz), 8.27 (1H, s), 9.97 (1H, s), 10.32 (1H, s).
	137	δ 2.29 (6H, s), 7.22 (1H, d, J=5.1Hz), 7.43 (2H, s), 7.53 (1H, t, J=8.0Hz), 7.76 (1H, d, J=8.0Hz), 7.91-7.93 (2H, m), 8.26 (1H, s), 9.98 (1H, s), 10.42 (1H, s).
	138	δ 2.30 (6H, s), 7.45 (2H, s), 7.57 (1H, t, J=8.1Hz), 7.79 (1H, d, J=8.1Hz), 8.05 (1H, d, J=8.1Hz), 8.52 (1H, s), 9.97 (1H, s), 11.11 (1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 139	δ 2.30 (6H, s), 7.26 (1H, d, J = 5.4Hz), 7.45 (2H, s), 7.54 (1H, t, J = 8.0Hz), 7.77 (1H, d, J = 8.0Hz), 7.90-7.94 (2H, m), 8.27 (1H, s), 9.99 (1H, s), 10.50 (1H, s).
10 140	δ 2.30 (6H, s), 7.39 (1H, d, J = 4.6Hz), 7.45 (2H, s), 7.54 (1H, t, J = 8.1Hz), 7.77 (1H, d, J = 8.1Hz), 7.92 (1H, d, J = 4.6Hz), 8.02 (1H, d, J = 8.1Hz), 8.26 (1H, s), 9.99 (1H, s), 10.50 (1H, s).
141	δ 2.30 (6H, s), 7.29 (1H, d, J = 4.9Hz), 7.45 (2H, s), 7.55 (1H, t, J = 7.9Hz), 7.77 (1H, d, J = 7.9Hz), 7.81 (1H, d, J = 4.9Hz), 7.92 (1H, d, J = 7.9Hz), 8.29 (1H, s), 10.00 (1H, s), 10.50 (1H, s).
142	δ 2.27 (6H, s), 7.25-7.52 (10H, m), 7.70-7.73 (1H, m), 7.81-7.20 (1H, m), 8.12 (1H, s), 9.94 (1H, s), 10.27 (1H, s).
143	δ 2.28 (6H, s), 2.40 (3H, s), 2.45 (3H, s), 6.74 (1H, s), 7.43 (2H, s), 7.49 (1H, t, J = 8.1Hz), 7.71 (1H, d, J = 8.1Hz), 7.90 (1H, d, J = 8.1Hz), 8.24 (1H, s), 9.94 (1H, s), 9.98 (1H, s).
144	δ 2.31 (6H, s), 7.41-7.59 (5H, m), 7.78 (1H, d, J = 7.8Hz), 8.00-8.09 (3H, m), 8.34 (1H, d, J = 2.0Hz), 8.43 (1H, s), 10.02 (1H, s), 10.75 (1H, s).
20 146	δ 0.86 (3H, 7.2), 2.30 (6H, s), 4.34 (2H, q, J = 7.2Hz), 7.45 (2H, s), 7.77-7.79 (3H, m), 7.84 (1H, s), 8.24 (1H, s), 8.37 (1H, s), 10.05 (1H, s), 11.11 (1H, s).
147	δ 2.30 (6H, s), 3.89 (3H, s), 7.45 (2H, s), 7.52 (1H, t, J = 7.9Hz), 7.73 (1H, d, J = 7.9Hz), 7.97 (1H, d, J = 7.9Hz), 8.23 (1H, s), 8.45 (1H, s), 9.98 (1H, s), 10.08 (1H, s).
25 148	δ 2.35 (6H, s), 3.92 (3H, s), 7.26 (1H, s), 7.36 (2H, s), 7.48-7.55 (2H, m), 7.70 (1H, d, J = 7.7Hz), 7.83 (1H, d, J = 7.7Hz), 8.26 (1H, s), 8.47 (1H, s).
149	δ 2.36 (6H, s), 3.95 (3H, s), 7.26 (1H, s), 7.36 (2H, s), 7.50 (1H, t, J = 7.7Hz), 7.70 (1H, d, J = 7.7Hz), 7.83 (1H, d, J = 7.7Hz), 8.00 (1H, s), 8.26 (1H, s), 8.58 (1H, s).
30 150	(CDCl ₃) δ 2.35 (6H, s), 4.01 (3H, s), 7.36 (2H, s), 7.51 (1H, t, J = 7.8Hz), 7.68-7.73 (3H, m), 7.92 (1H, s), 8.05 (1H, s), 8.25 (1H, s).
151	δ 2.29 (6H, s), 4.06 (3H, s), 7.44 (2H, s), 7.53 (1H, t, J = 7.9Hz), 7.77 (1H, d, J = 7.9Hz), 7.96 (1H, d, J = 7.9Hz), 8.11 (1H, s), 8.26 (1H, s), 10.02 (1H, s), 10.58 (1H, s).
152	δ 2.30 (6H, s), 7.32 (1H, d, J = 2.0Hz), 7.45 (2H, s), 7.58 (1H, t, J = 7.8Hz), 7.81 (1H, d, J = 7.8Hz), 8.04 (1H, d, J = 7.8Hz), 8.35 (1H, s), 8.84 (1H, d, J = 2.0Hz), 10.03 (1H, s), 10.97 (1H, s).
35 153	δ 2.29 (6H, s), 7.46 (2H, s), 7.64 (1H, t), 7.72 (1H, d, J = 1.0Hz), 7.81 (1H, s), 7.97 (1H, d, J = 8.0Hz), 8.17 (1H, s), 8.34 (1H, s), 10.04 (1H, s).
154	δ 2.29 (6H, s), 2.51 (3H, s), 2.56 (3H, s), 7.46 (2H, s), 7.53 (1H, t, J = 8.03Hz), 7.75 (1H, d, J = 8.03Hz), 7.92 (1H, d, J = 8.03Hz), 8.24 (1H, s), 9.79 (1H, s), 10.30 (1H, s).
40 155	δ 1.36 (3H, t, J = 7.3Hz), 2.30 (6H, s), 2.73 (3H, s), 3.05 (2H, q, J = 7.3Hz), 7.45 (2H, s), 7.55 (1H, t, J = 8.3Hz), 7.78 (1H, d, J = 8.3Hz), 7.98 (1H, d, J = 8.3Hz), 8.29 (1H, s), 10.01 (1H, s), 10.69 (1H, s).
156	δ 2.28 (6H, s), 2.57 (3H, s), 7.43 (2H, s), 7.53 (1H, t, J = 7.8Hz), 7.77 (1H, d, J = 7.8Hz), 7.91 (1H, d, J = 7.8Hz), 8.21 (1H, s), 9.98 (1H, s), 10.47 (1H, s).
45 157	δ 2.31 (6H, s), 7.45 (2H, s), 7.57 (1H, t, J = 7.8Hz), 7.79 (1H, d, J = 7.8Hz), 8.06 (1H, d, J = 7.8Hz), 8.53 (1H, s), 10.00 (1H, s), 11.12 (1H, s).
158	δ 2.36 (6H, s), 7.45 (2H, s), 7.57 (1H, t, J = 8.1Hz), 7.79 (1H, d, J = 8.1Hz), 8.06 (1H, d, J = 8.1Hz), 8.53 (1H, s), 10.01 (1H, s), 11.11 (1H, s).
50 159	δ 2.30 (6H, s), 7.45 (2H, s), 7.56-7.66 (3H, m), 7.80 (1H, d, J = 8.3Hz), 7.94-7.98 (2H, m), 8.16-8.20 (1H, m), 8.32 (1H, s), 10.04 (1H, s), 10.79 (1H, s).
160	δ 2.31 (6H, s), 7.45 (2H, s), 7.53-7.61 (2H, m), 7.78 (1H, d, J = 7.8Hz), 7.92-7.95 (1H, m), 8.02-8.07 (2H, m), 8.34 (1H, s), 9.99 (1H, s), 10.50 (1H, s).
55 161	δ 2.30 (6H, s), 7.37 (1H, t, J = 7.8Hz), 7.45 (2H, s), 7.57 (1H, t, J = 7.8Hz), 7.62-7.65 (2H, m), 7.79 (1H, d, J = 7.8Hz), 7.99 (1H, d, J = 7.8Hz), 8.30 (1H, s), 10.01 (1H, s), 10.65 (1H, s).

(continued)

	comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5	163	δ 2.38 (3H, s), 7.53-7.63 (4H, m), 7.70 (1H, s), 7.77 (1H, d, J = 7.8Hz), 7.81 (1H, s). 7.99-8.01 (2H, m), 8.08 (1H, d, J = 7.8Hz), 8.37 (1H, s), 10.28 (1H, s), 10.50 (1H, s).
	164	(CDCl ₃) δ 1.20 (3H, t, J = 7.3Hz), 2.32 (3H, s), 2.67 (2H, q, J = 7.3Hz), 7.36 (2H, s). 7.46-7.51 (3H, m), 7.55-7.59 (1H, m), 7.67-7.72 (2H, m), 7.85-7.88 (3H, m), 8.15 (1H, s), 8.28 (1H, s).
10	165	δ 1.13(3H, t, J = 7.3Hz), 2.29(3H, s), 2.67(2H, q, J = 7.3Hz), 7.33-7.41(3H, m), 7.47(1H, s), 7.52-7.63(2H, m), 7.67-7.76(2H, m), 7.97(1H, d, J = 7.8Hz), 8.32(1H, s), 10.01(1H, s), 10.65 (1H, s).
	166	δ 2.36 (3H, s), 7.53-7.63 (4H, m), 7.68 (1H, s), 7.79 (1H, d, J = 7.8Hz), 7.96 (1H, s). 7.99-8.01 (2H, m), 8.08 (1H, dd, J = 1.5, 7.8Hz), 8.38 (1H, d, J = 1.5Hz), 10.27 (1H, s), 10.50 (1H, s).
15	167	(CDCl ₃) δ 2.48(3H, s), 7.05(1H, s), 7.23(1H, s), 7.50-7.62(4H, m), 7.69(1H, d, J = 7.8Hz), 7.84 (1H, dd, J = 2.0, 7.8Hz), 7.89(2H, d, J = 6.8Hz), 8.13(1H, s), 8.16(1H, d, J = 6.8Hz), 8.39(1H, t, J = 1.9Hz), 8.89(1H, s).
	168	δ 1.15(3H, t, J = 7.3Hz), 2.73(2H, q, J = 7.3Hz), 7.50-7.63(5H, m), 7.71-7.77(2H, m), 7.94-8.01 (2H, m), 8.08(1H, d, J = 7.8Hz), 8.37(1H, s), 10.28(1H, s), 10.50(1H, s).
20	169	δ 1.14(3H, t, J = 7.3Hz), 2.73(2H, q, J = 7.3Hz), 7.52-7.64(5H, m), 7.76(1H, d, J = 7.8Hz), 7.83 (1H, d, J = 2.0Hz), 7.98-8.01(2H, m), 8.06-8.09(1H, m), 8.37(1H, s), 10.29(1H, s), 10.48(1H, s).
	170	δ 1.14(3H, t, J = 7.3Hz), 2.72(2H, q, J = 7.3Hz), 7.33-7.39(2H, m), 7.53-7.64(3H, m), 7.67-7.72 (1H, m), 7.76(1H, d, J = 7.8Hz), 7.82(1H, s), 7.98(1H, d, J = 8.8Hz), 8.32(1H, s), 10.30(1H, s), 10.65(1H, s),
25	171	δ 1.13(3H, t, J = 7.3Hz), 2.71(2H, q, J = 7.3Hz), 7.52-7.63(5H, m), 7.78(1H, d, J = 7.8Hz), 7.97-8.01(3H, m), 8.07-8.09(1H, m), 8.37(1H, d, J = 2.0Hz), 10.28(1H, s), 10.48(1H, s).
	172	δ 1.13(3H, t, J = 7.3Hz), 2.71(2H, q, J = 7.3Hz), 7.33-7.39(2H, m), 7.54-7.63(3H, m), 7.67-7.72 (1H, m), 7.78(1H, d, J = 7.8Hz), 7.97-8.00(2H, m), 8.33(1H, s), 10.30(1H, s), 10.66(1H, s).
30	173	δ 1.13(3H, t, J = 7.3Hz), 2.72(2H, q, J = 7.3Hz), 7.57-7.64(2H, m), 7.83(1H, d, J = 7.8Hz), 7.98 (1H, s), 8.10(1H, d, J = 7.8Hz), 8.24(2H, d, J = 8.8Hz), 8.37(1H, s), 8.40(2H, d, J = 8.8Hz), 10.32(1H, s), 10.81(1H, s).
	174	δ 1.13(3H, t, J = 7.3Hz), 2.71(2H, q, J = 7.3Hz), 7.56-7.63(2H, m), 7.82(1H, d, J = 7.8Hz), 7.98 (1H, s), 8.04-8.10(3H, m), 8.15(2H, d, J = 8.3Hz), 8.36(1H, s), 10.31(1H, s), 10.72(1H, s).
35	175	δ 0.85(3H, t, J = 7.3Hz), 1.49-1.59(2H, m), 2.30(3H, s), 2.65(2H, t, J = 6.8Hz), 7.40(1H, s), 7.47 (1H, s), 7.58(1H, t, J = 7.8Hz), 7.79(1H, d, J = 7.8Hz), 8.08(1H, s), 8.22-8.25(2H, m), 8.36-8.41 (3H, m), 10.03(1H, s), 10.79(1H, s).
	176	δ 1.18(6H, d, J = 6.8Hz), 2.29(3H, s), 3.23(1H, septet, J = 6.8Hz), 7.41(1H, s), 7.47(1H, s), 7.52-7.63(4H, m), 7.75(1H, d, J = 7.8Hz), 7.99-8.01(2H, m), 8.06-8.09(1H, m), 8.36(1H, t, J = 2.0Hz), 10.00(1H, s), 10.48(1H, s).
40	177	δ 1.17(6H, d, J = 6.8Hz), 2.30(3H, s), 3.24(1H, septet, J = 6.8Hz), 7.28-7.41(3H, m), 7.47(1H, s), 7.55-7.63(2H, m), 7.65-7.78(2H, m), 7.99(1H, d, J = 7.8Hz), 8.33(1H, s), 10.02(1H, s), 10.66 (1H, s).
	178	δ 0.85(3H, t, J = 7.3Hz), 1.47-1.60(2H, m), 2.70(2H, t, J = 7.3Hz), 7.53-7.63(5H, m), 7.75(1H, d, J = 7.8Hz), 7.83(1H, d, J = 2.0Hz), 7.98-8.01(2H, m), 8.08(1H, d, J = 7.8Hz), 8.36(1H, s), 10.29(1H, s), 10.49(1H, s).
45	179	δ 0.85(3H, t, J = 7.3Hz), 1.50-1.60(2H, m), 2.69(2H, t, J = 6.8Hz), 7.29-7.40(2H, m), 7.53-7.62 (3H, m), 7.67-7.76(2H, m), 7.83(1H, d, J = 2.0Hz), 7.98(1H, d, J = 7.8Hz), 8.32(1H, s), 10.31 (1H, s), 10.66(1H, s).
	180	δ 0.85(3H, t, J = 7.3Hz), 1.50-1.58(2H, m), 2.70(2H, t, J = 7.8Hz), 7.57-7.63(2H, m), 7.78-7.84 (2H, m), 8.09(1H, d, J = 7.8Hz), 8.18-8.24(2H, m), 8.35-8.41(3H, m), 10.32(1H, s), 10.80(1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 181	δ 0.85(3H, t, J = 7.3Hz), 1.50-1.60(2H, m), 2.69(2H, t, J = 7.3Hz), 7.56-7.62(2H, m), 7.79(1H, d, J = 7.8Hz), 7.83(1H, d, J = 2.0Hz), 8.04-8.09(3H, m), 8.15(2H, d, J = 8.8Hz), 8.35(1H, s), 10.31(1H, s), 10.72(1H, s).
10 182	δ 0.84(3H, t, J = 7.3Hz), 1.49-1.59(2H, m), 2.68(2H, t, J = 7.3Hz), 7.53-7.63(5H, m), 7.77(1H, d, J = 7.8Hz), 7.97-8.01(3H, m), 8.08(1H, d, J = 7.8Hz), 8.37(1H, s), 10.29(1H, s), 10.49(1H, s).
15 183	δ 0.84(3H, t, J = 7.3Hz), 1.49-1.59(2H, m), 2.67(2H, t, J = 7.3Hz), 7.28-7.40(2H, m), 7.51-7.63(3H, m), 7.68-7.72(1H, m), 7.77(1H, d, J = 8.3Hz), 7.97-8.00(2H, m), 8.33(1H, s), 10.31(1H, s), 10.67(1H, s).
20 184	δ 0.84(3H, t, J = 7.3Hz), 1.49-1.59(2H, m), 2.68(2H, t, J = 6.8Hz), 7.57-7.62(2H, m), 7.82(1H, d, J = 7.8Hz), 7.98(1H, d, J = 2.0Hz), 8.08-8.10(1H, m), 8.15-8.41(5H, m), 10.32(1H, s), 10.80(1H, s).
25 185	δ 0.84(3H, t, J = 7.3Hz), 1.49-1.57(2H, m), 2.68(2H, broad), 7.56-7.61(2H, m), 7.81(1H, d, J = 7.8Hz), 7.98(1H, s), 8.05(2H, d, J = 8.3Hz), 8.09(1H, s), 8.15(2H, d, J = 8.3Hz), 8.35(1H, s), 10.31(1H, s), 10.72(1H, s).
30 186	δ 0.84(3H, t, J = 7.3Hz), 1.49-1.57(2H, m), 2.68(2H, t, J = 6.8Hz), 7.56-7.61(2H, m), 7.80(1H, d, J = 7.8Hz), 7.94(2H, d, J = 8.3Hz), 7.98(1H, s), 8.09(1H, d, J = 7.8Hz), 8.20(2H, d, J = 8.3Hz), 8.36(1H, s), 10.31(1H, s), 10.71(1H, s).
35 187	δ 0.83(3H, t, J = 7.3Hz), 1.21-1.31(2H, m), 1.47-1.55(2H, m), 2.72(2H, t, J = 7.8Hz), 7.53-7.63(5H, m), 7.70-7.75(2H, m), 7.99-8.01(2H, m), 8.06-8.09(1H, m), 8.37(1H, t, J = 2.0Hz), 10.27(1H, s), 10.49(1H, s).
40 188	δ 0.83(3H, t, J = 7.3Hz), 1.21-1.31(2H, m), 1.47-1.55(2H, m), 2.72(2H, t, J = 7.8Hz), 7.33-7.40(2H, m), 7.53-7.63(3H, m), 7.67-7.75(3H, m), 7.98(1H, d, J = 7.8Hz), 8.32(1H, s), 10.29(1H, s), 10.66(1H, s).
45 189	δ 0.83(3H, t, J = 7.3Hz), 1.21-1.31(2H, m), 1.47-1.55(2H, m), 2.72(2H, t, J = 7.3Hz), 7.52-7.63(5H, m), 7.75(1H, d, J = 7.8Hz), 7.82(1H, d, J = 1.5Hz), 7.99-8.01(2H, m), 8.08(1H, dd, J = 1.5, 7.8Hz), 8.37(1H, t, J = 1.5Hz), 10.29(1H, s), 10.49(1H, s).
50 190	δ 0.83(3H, t, J = 7.3Hz), 1.21-1.31(2H, m), 1.47-1.55(2H, m), 2.71(2H, t, J = 7.3Hz), 7.28-7.37(2H, m), 7.53-7.62(3H, m), 7.72(1H, t, J = 7.3Hz), 7.75(1H, d, J = 7.8Hz), 7.82(1H, s), 7.98(1H, d, J = 7.8Hz), 8.62(1H, s), 10.31(1H, s), 10.66(1H, s).
55 191	δ 0.82(3H, t, J = 7.3Hz), 1.22-1.30(2H, m), 1.46-1.54(2H, m), 2.70(2H, t, J = 7.8Hz), 7.53-7.63(5H, m), 7.78(1H, d, J = 7.8Hz), 7.93-8.02(3H, m), 8.07-8.09(1H, m), 8.37(1H, s), 10.29(1H, s), 10.49(1H, s).
192	δ 0.83(3H, t, J = 7.3Hz), 1.21-1.31(2H, m), 1.47-1.55(2H, m), 2.71(2H, t, J = 7.8Hz), 7.28-7.40(2H, m), 7.55-7.65(3H, m), 7.69-7.73(1H, m), 7.79(1H, d, J = 7.8Hz), 7.98-8.02(2H, m), 8.35(1H, s), 10.33(1H, s), 10.68(1H, s).
193	δ 0.75(3H, t, J = 7.3Hz), 1.18(3H, d, J = 6.8Hz), 1.55-1.60(2H, m), 3.00-3.05(1H, m), 7.49-7.67(5H, m), 7.72-7.77(2H, m), 7.99-8.02(2H, m), 8.09(1H, d, J = 7.8Hz), 8.36(1H, s), 10.29(1H, s), 10.49(1H, s).
194	δ 0.75(3H, t, J = 7.3Hz), 1.17(3H, d, J = 6.8Hz), 1.55-1.60(2H, m), 2.98-3.04(1H, m), 7.52-7.63(5H, m), 7.77(1H, d, J = 8.3Hz), 7.84(1H, s), 7.99-8.10(3H, m), 8.36(1H, s), 10.30(1H, s), 10.49(1H, s).
195	δ 0.74(3H, t, J = 7.3Hz), 1.17(3H, d, J = 6.8Hz), 1.55-1.63(2H, m), 2.98-3.04(1H, m), 7.33-7.40(2H, m), 7.52-7.63(3H, m), 7.67-7.77(2H, m), 7.83(1H, d, J = 1.5Hz), 7.99(1H, d, J = 8.3Hz), 8.32(1H, s), 10.32(1H, s), 10.66(1H, s).
196	δ 0.74(3H, t, J = 6.8Hz), 1.15(3H, d, J = 6.8Hz), 1.53-1.64(2H, m), 2.94-3.04(1H, m), 7.51-7.63(5H, m), 7.79(1H, d, J = 7.3Hz), 7.98-8.02(3H, m), 8.09(1H, dd, J = 1.5, 7.8Hz), 8.37(1H, s), 10.30(1H, s), 10.50(1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 197	δ 7.33-7.41(2H, m), 7.56-7.64(2H, m), 7.68-7.73(2H, m), 7.93-8.03(2H, m), 8.38-8.40(1H, m), 8.45(1H, d, J = 2.0Hz), 10.72(1H, s), 10.98(1H, s).
	δ 2.50(3H, s), 7.39(1H, s), 7.48-7.63(4H, m), 7.73(1H, s), 7.77(1H, d, J = 7.8Hz), 7.99-8.01(2H, m), 8.08(1H, d, J = 7.8Hz), 8.35(1H, s), 10.36(1H, s), 10.50(1H, s).
10 199	δ 2.50(3H, s), 7.33-7.39(3H, m), 7.53-7.63(2H, m), 7.67-7.77(3H, m), 7.98(1H, d, J = 7.8Hz), 8.30(1H, s), 10.38(1H, s), 10.67(1H, s).
	δ 2.81(3H, s), 7.53-7.64(4H, m), 7.75(1H, d, J = 8.3Hz), 7.99-8.01(2H, m), 8.08-8.11(2H, m), 8.25(1H, d, J = 2.0Hz), 8.40(1H, t, J = 2.0Hz), 10.52(1H, s), 10.61(1H, s).
15 201	δ 3.40(3H, s), 7.33-7.40(2H, m), 7.56-7.63(2H, m), 7.67-7.78(2H, m), 7.99(1H, d, J = 8.3Hz), 8.17(1H, d, J = 1.5Hz), 8.35(1H, s), 8.39(1H, d, J = 1.5Hz), 10.63(1H, s), 10.69(1H, s).
	δ 3.40(3H, s), 7.57-7.62(2H, m), 7.79(1H, d, J = 7.8Hz), 7.96(1H, dd, J = 1.5,8.3Hz), 8.12(1H, dd, J = 1.5,8.3Hz), 8.17(1H, d, J = 2.0Hz), 8.32(1H, d, J = 2.0Hz), 8.40(1H, d, J = 2.0Hz), 8.54-8.56(1H, m), 10.65(1H, s), 10.92(1H, s).
20 203	δ 3.40(3H, s), 7.53-7.63(4H, m), 7.78(1H, d, J = 7.8Hz), 7.98-8.01(2H, m), 8.07-8.10(1H, m), 8.21(1H, s), 8.39(1H, s), 8.48(1H, d, J = 1.5Hz), 10.51(1H, s), 10.63(1H, s).
	δ 3.39(3H, s), 7.33-7.40(2H, m), 7.56-7.63(2H, m), 7.68-7.72(1H, m), 7.78(1H, d, J = 7.8Hz), 8.00(1H, d, J = 7.8Hz), 8.21(1H, d, J = 1.5Hz), 8.35(1H, s), 8.48(1H, d, J = 1.5Hz), 10.66(1H, s), 10.69(1H, s).
25 205	δ 3.39(3H, s), 7.36-7.42(2H, m), 7.58(1H, t, J 7.8Hz), 7.78(1H, d, J = 7.8Hz), 8.06-8.10(3H, m), 8.21(1H, s), 8.36(1H, s), 8.48(1H, s), 10.52(1H, s), 10.63(1H, s).
	δ 3.39(3H, s), 7.61(1H, t, J = 7.8Hz), 7.82(1H, d, J = 7.8Hz), 8.09(1H, d, J = 7.8Hz), 8.20-8.24(3H, m), 8.37-8.41(3H, m), 8.48(1H, s), 10.67(1H, s), 10.83(1H, s).
30 207	δ 3.39(3H, s), 7.60(1H, t, J = 7.8Hz), 7.81(1H, d, J = 7.8Hz), 7.97-8.10(3H, m), 8.14-8.21(3H, m), 8.37(1H, t, J = 2.0Hz), 8.48(1H, d, J = 2.0Hz), 10.65(1H, s), 10.74(1H, s).
	δ 3.39(3H, s), 7.57-7.62(2H, m), 7.80(1H, d, J = 7.8Hz), 7.96(1H, dd, J = 1.5,7.8Hz), 8.11(1H, dd, J = 1.5,7.8Hz), 8.20(1H, s), 8.31(1H, s), 8.51(1H, s), 8.55(1H, dd, J = 1.5,4.9Hz), 10.68(1H, s), 10.92(1H, s).
35 209	δ 1.96(3H, s), 3.84(2H, broad), 7.53-7.63(4H, m), 7.73(1H, d, J = 7.8Hz), 7.89(1H, s), 7.99-8.01(2H, m), 8.07(1H, dd, J = 1.5,7.8Hz), 8.19(1H, s), 8.33(1H, t, J 2.0Hz), 10.43(1H, s), 10.49(1H, s).
	δ 7.53-7.64(4H, m), 7.81(1H, d, J = 7.8Hz), 8.00-8.05(3H, m), 8.11(1H, d, J = 7.8Hz), 8.31(1H, d, J = 1.5Hz), 8.41(1H, s), 10.52(1H, s), 10.93(1H, s).
40 211	δ 2.29(6H, s), 7.47(2H, s), 7.50-7.62(4H, m), 7.75(1H, d, J = 7.8Hz), 7.97-8.00(2H, m), 8.05(1H, dd, J = 1.5,7.8Hz), 8.36(1H, s), 10.01(1H, s), 10.46(1H, s).
	δ 2.30 (6H, s), 7.45 (2H, s), 7.51-7.63 (4H, m), 7.76 (1H, d, J = 7.8Hz), 7.98-8.07 (3H, m), 8.37 (1H, d, J = 2.0Hz), 9.99 (1H, s), 10.48 (1H, s).
45 255	δ 7.25-7.29(2H, m), 7.54-7.65(2H, m), 7.78(1H, d, J = 7.8Hz), 7.92-7.95(1H, m), 8.03(2H, s), 8.30(1H, s), 10.58(1H, s), 11.05(1H, s).
	δ 7.53-7.63(4H, m), 7.78(1H, d, J = 7.3Hz), 7.99-8.01(2H, m), 8.06-8.09(1H, m), 8.17(2H, s), 8.38(1H, s), 10.50(1H, s), 10.55(1H, s).
50 257	δ 7.25-7.29(2H, m), 7.55-7.63(2H, m), 7.79(1H, d, J = 7.3Hz), 7.94(1H, d, J = 8.3Hz), 8.17(2H, s), 8.30(1H, s), 10.60(1H, s), 11.05(1H, s).
	(CDCl ₃) δ 7.45-7.61(4H, m), 7.76(1H, d, J=7.8Hz), 7.84-7.91(3H, m), 7.93(2H, s), 8.02(1H, s), 8.08(1H, d, J=6.8Hz), 8.31(1H, s).

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(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 259	(CDCl ₃) δ 7.22(1H, dd, J=7.8, 12.2Hz), 7.35(1H, t, J=7.8Hz), 7.52-7.60(2H, m), 7.77(1H, d, J=7.8Hz), 7.88(1H, s), 7.92(1H, s), 7.93(2H, d), 8.19(1H, dt, J=1.9, 7.8Hz), 8.33(1H, s), 8.64(1H, d, J=15.6Hz).
10 260	(CDCl ₃) δ 2.31(6H, s), 7.41(2H, s), 7.50-7.67(5H, m), 7.71(1H, d, J=7.8Hz), 7.87-7.90(3H, m), 8.07(1H, s), 8.31(1H, s).
15 261	(CDCl ₃) δ 2.33(6H, s), 7.20-7.25(1H, m), 7.35(1H, t, J=7.3Hz), 7.44(2H, s), 7.52-7.60(3H, m), 7.73(1H, d, J=7.8Hz), 7.88(1H, dd, J=1.0, 7.8Hz), 8.18(1H, dt, J=2.0, 7.8Hz), 8.33(1H, s), 8.63(1H, d, J=7.3Hz).
20 262	(CDCl ₃) δ 7.44-7.57(5H, m), 7.72(2H, s), 7.78(1H, d, J=7.8Hz), 8.00(1H, d, J=6.8Hz), 8.18(1H, d, J=8.3Hz), 8.34(1H, t, J=2.0Hz), 9.46(1H, s), 9.83(1H, s).
25 263	(CDCl ₃) δ 7.47-7.57(4H, m), 7.78(1H, d, J=7.8Hz), 7.93(2H, s), 7.99-8.01(2H, m), 8.18(1H, d, J=7.8Hz), 8.33(1H, t, J=2.0Hz), 9.27(1H, s), 9.65(1H, s).
30 266	δ 7.20-7.25(1H, m), 7.35(1H, t, J=7.8Hz), 7.53-7.60(2H, m), 7.76-7.79(2H, m), 7.95(2H, s), 7.96(1H, s), 8.19(1H, dt, J=2.0, 7.8Hz), 8.32(1H, s), 8.63(1H, d, J=15.7Hz).
35 276	(CDCl ₃) δ 7.56(1H, t, J 7.8Hz), 7.71(1H, d, J = 7.8Hz), 7.75(1H, d, J = 7.8Hz), 7.87-7.90(3H, m), 8.04(1H, d, J = 7.8Hz). 8.28(2H, s), 8.42(1H, dd, J = 1.0, 7.3Hz), 8.46(1H, s), 8.76(1H, t J = 2.0Hz).
40 284	(CDCl ₃) δ 7.03(2H, t, J=7.8Hz), 7.42-7.49(1H, m), 7.54(1H, t, J=7.8Hz), 7.78(1H, d, J=7.8Hz), 7.81(1H, s), 7.87-7.92(2H, m), 7.93(2H, s). 8.28(1H, t, J=2.0Hz).
45 285	δ 6.86(1H, d, J = 8.8Hz), 7.24(1H, t, J = 7.8Hz), 7.30-7.32(2H, m), 7.47(1H, t, J 7.8Hz), 7.77(1H, d, J = 7.8Hz), 7.93(2H, s). 8.14(1H, d, J = 7.3Hz), 8.31(1H, s), 9.32(1H, s), 9.46(1H, s).
50 286	δ 2.17(3H, s), 7.40(1H, t, J = 7.8Hz), 7.49(1H, t, J = 7.8Hz), 7.80(1H, d, J = 7.8Hz), 7.78(1H, d, J = 7.8Hz), 7.94-7.95(3H, m), 8.06(1H, s), 8.16(1H, d, J = 7.8Hz), 8.31(1H, s), 9.50(1H, s), 9.58(1H, s), 9.79(1H, s).
55 287	δ 3.00(3H, s), 7.42(1H, t, J = 7.8Hz), 7.50(1H, t, J = 7.8Hz), 7.48(1H, s), 7.74(1H, d, J = 7.8Hz), 7.79(1H, d, J = 7.8Hz), 7.88(1H, t, J = 2.0Hz), 7.93(2H, s), 8.17(1H, d, J = 7.8Hz), 8.29(1H, t, J = 2.0Hz), 9.37(1H, s), 9.49(1H, s), 9.72(1H, s).
288	(CDCl ₃) δ 7.51(1H, t, J = 7.8Hz), 7.69(1H, d, J = 7.8Hz), 7.86-7.91(3H, m), 7.95(2H, s), 8.07(1H, s), 8.39(1H, s), 8.53-8.55(1H, m), 8.90(1H, s).
289	(CDCl ₃) δ 7.54(1H, t, J = 8.3Hz), 7.80(1H, d, J = 7.8Hz), 7.94(2H, s), 8.02(1H, d, J = 8.3Hz), 8.26-8.27(2H, m), 8.52(1H, d, J=8.3Hz), 8.74(1H, s), 8.87(1H, s), 10.56(1H, s).
290	δ 2.68(3H, s), 7.52(1H, t, J = 7.8Hz), 7.81(1H, d, J = 7.8Hz), 7.93(2H, s), 8.03(2H, s), 8.07(1H, s), 8.24(1H, d, J 7.8Hz), 8.29(1H, s), 9.34(1H, s), 10.13(1H, s).
291	(CDCl ₃) δ 4.17(2H, s), 6.80-6.84(1 H, m), 6.98(1 H, dd, J = 7.8, 11.2Hz), 7.33(1 H, dd, J = 2.9, 6.4Hz), 7.51(1H, t, J = 7.8Hz), 7.82(1H, d, J = 7.8Hz), 7.94(2H, s), 8.10(1H, d, J = 8.2Hz), 8.22(1H, s), 9.06(1H, d, J = 13.2Hz), 9.48(1H, s).
292	(CDCl ₃) δ 7.44(1H, dd, J = 8.8, 10.7Hz), 7.58(1H, t, J = 7.8Hz), 7.80(1H, d, J = 7.8Hz), 7.85(1H, s), 7.95(2H, s), 7.98(1H, d, J = 7.8Hz), 8.27(1H, s), 8.43-8.47(1H, m), 8.55(1H, d, J = 14.2Hz), 9.09(1H, dd, J = 3.0, 6.4Hz).
293	δ 2.97(3H, s), 7.16(1H, dd, J = 8.8, 10.8Hz), 7.49(1H, t, J = 7.8Hz), 7.51(1H, s), 7.83(1H, d, J = 7.8Hz), 7.90-7.93(1H, m), 7.94(2H, s), 8.10(1H, d, J = 7.8Hz), 8.24(1H, s), 9.15(1H, d, J = 11.2Hz), 9.38(1H, s), 9.58(1H, s).
294	(CDCl ₃) δ 4.22(3H, s), 7.56(1H, t, J = 7.8Hz), 7.75(1H, t, J = 7.8Hz), 7.83(1H, s), 7.94(1H, s), 7.95(2H, s), 7.99-8.05(2H, m), 8.25(1H, s), 8.47(1H, d, J = 7.8Hz), 9.83(1H, s).
295	δ 4.06(3H, s), 7.52(1H, t, J = 7.3Hz), 7.73(1H, d, J = 8.3Hz), 7.82-7.88(2H, m), 7.89(1H, d, J = 8.3Hz), 7.93(2H, s), 8.25-8.29(2H, m), 9.48(1 H, s), 10.23(1H, s).

(continued)

	comp. No.	1H-NMR (DMSO-d ₆ , ppm)
5	296	(CDCl ₃) δ 2.16(3H, s), 7.14(1H, dd, J = 9.3, 11.2Hz), 7.52(1H, t, J = 7.8Hz), 7.80(1H, d, J = 7.8Hz), 7.94(2H, s), 7.96(1H, d, J = 2.9Hz), 8.01(1H, d, J = 7.8Hz), 8.13-8.16(1H, m), 8.27(1H, s), 8.86(1H, s), 8.90(1H, d, J = 14.2Hz), 9.00(1H, s).
10	306	(CDCl ₃) δ 7.52-7.58(2H, m), 7.77(1H, d, J = 7.8Hz), 7.90(1H, s), 7.94(2H, s), 7.95(1H, d, J = 7.8Hz), 8.01-8.03(1H, m), 8.31(1H, d, J = 7.8Hz), 8.47(1H, s), 8.65(1H, dd, J = 1.0, 4.9Hz), 10.25(1H, s).
15	307	(CDCl ₃) δ 7.57(1H, t, J = 7.8Hz), 7.73-7.77(3H, m), 7.84(1H, s), 7.89(2H, s), 8.05(1H, d, J = 7.8Hz), 8.26(1H, s), 8.32(1H, s), 8.81(1H, s), 8.83(1H, s).
20	309	(CDCl ₃) δ 7.44(1H, dd, J=4.8, 7.8Hz), 7.56(1H, t, J=7.8Hz), 7.80(1H, d, J=7.8Hz), 7.86(1H, s), 7.92(1H, d, J=7.3Hz), 7.95(2H, s), 8.23(1H, dd, J=20, 7.9Hz), 8.30(1H, s), 8.41(1H, s), 8.55(1H, dd, J=2.0, 4.5Hz).
25	310	(CDCl ₃) δ 7.46(1H, d, J = 8.3Hz), 7.55(1H, t, J = 8.3Hz), 7.74(1H, d, J = 8.3Hz), 7.88(3H, s). 8.03(1H, d, J = 7.8Hz), 8.18(1H, dd, J = 3.0, 8.2Hz), 8.24(1H, s), 8.41(1H, s), 8.90(1H, d, J = 2.4Hz).
30	312 312	(CDCl ₃) δ 7.57(1H, t, J = 7.8Hz), 7.70(2H, s), 7.75(1H, d, J = 7.8Hz), 7.83(1H, s), 7.88(2H, s), 8.04(1H, d, J = 7.8Hz), 8.21(1H, s), 8.47(1H, s).
35	313	(CDCl ₃) δ 7.33(1H, t, J = 7.8Hz), 7.46(1H, d, J = 8.3Hz), 7.60(1H, s), 7.76(1H, s), 7.80(1H, d, J = 7.8Hz), 7.95(2H, s), 8.18-8.23(2H, m), 8.40(1H, s).
40	314	(CDCl ₃) δ 2.62(3H, s), 7.29(1H, s), 7.56(1H, t, J = 7.8Hz), 7.77-7.79(2H, m), 7.91(1H, s), 7.94(2H, s), 8.16(1H, d, J = 7.8Hz), 8.29(1H, s), 8.48(1H, s).
45	315	(CDCl ₃) δ 7.47-7.59(3H, m), 7.80(1H, d, J = 7.8Hz), 7.93(1H, s), 7.94(2H, s), 8.26(1H, s), 8.34(1H, d, J = 6.5Hz), 8.47(1H, t, J = 2.0Hz), 8.52-8.55(1H, m), 13.91(1H, s).
50	316	(CDCl ₃) δ 7.59(1H, t, J = 7.8Hz), 7.79(1H, d, J = 7.8Hz), 7.84(1H, s), 7.95(2H, s), 8.04(1H, d, J = 7.8Hz), 8.41(1H, t, J = 2.0Hz), 8.63(1H, t, J = 2.5Hz), 8.86(1H, d, J = 2.4Hz), 9.54(1H, d, J = 1.5Hz), 9.87(1H, s).
55	317	(CDCl ₃) δ 3.93(3H, s), 7.53(1H, t, J = 7.8Hz), 7.74(1H, d, J = 7.8Hz), 7.84(1H, s), 7.87(1H, d, J = 7.8Hz), 7.94(2H, s), 8.03(1H, s), 8.26(1H, t, J = 2.0Hz), 8.48(1H, s).
	318	(CDCl ₃) δ 4.02(3H, s), 7.53(1H, t, J = 7.8Hz), 7.45(1H, d, J = 7.8Hz), 7.80(1H, d, J = 7.8Hz), 7.85(1H, s), 7.89(1H, s), 7.94(2H, s), 8.05(1H, s), 8.24(1H, s).
	319	(CDCl ₃) δ 4.10(3H, s), 7.53(1H, t, J = 7.8Hz), 7.67(1H, s), 7.76(1H, d, J = 7.8Hz), 7.70-7.86(3H, m). 7.94(2H, s), 8.21(1H, s).
	320	(CDCl ₃) δ 1.94-2.04(2H, m), 2.17-2.22(1H, m), 2.37-2.42(1H, m), 3.95-4.00(1H, m), 4.05-4.09(1H, m), 4.49(1H, dd, J = 5.9, 8.3Hz), 7.50(1H, t, J = 7.8Hz), 7.72(1H, d, J = 7.8Hz), 7.83(1H, dd, J = 2.0, 7.8Hz), 7.87(1H, s), 7.94(2H, s), 8.23(1H, t, J = 2.0Hz), 8.67(1H, s).
	321	(CDCl ₃) δ 7.51-7.53(3H, m), 7.57(1H, t, J = 8.3Hz), 7.76(1H, d, J = 7.3Hz), 7.83(1H, s), 7.95(2H, s), 8.01-8.07(3H, m), 8.23(1H, s), 8.38(1H, s), 9.51(1H, s).
	327 s.)	(CDCl ₃) δ 7.45-7.61(4H, m), 7.77(1H, d, J = 7.8Hz), 7.84-7.91(3H, m), 7.97-8.18(4H, m), 8.31(1H,
	328	(CDCl ₃) δ 7.24(1H, d, J = 7.BHz), 7.35(1H, t, J = 7.8Hz), 7.54-7.60(2H, m), 7.78(1H, d, J = 7.8Hz), 7.89(1H, s), 7.96(1H, d, J = 7.8Hz), 8.15-8.19(3H, m), 8.33(1H, s), 8.64(1H, d, J = 15.6Hz).
	329	(CDCl ₃) δ 7.44-7.57(4H, m), 7.70(2H, s), 7.78(1H, d, J=7.8Hz), 8.01(2H, d, J=6.8Hz), 8.17(1H, dd, J=1.0, 7.8Hz), 8.34(1H, t, J=2.0Hz), 9.45(1H, s), 9.81(1H, s).
	330	(CDCl ₃) δ 7.22(1H, dd, J=8.3, 12.2Hz), 7.34(1H, t, J=7.3Hz), 7.52-7.67(2H, m), 7.72(2H, s), 7.76(1H, d, J=7.9Hz), 7.90(1H, s), 7.92(1H, s), 8.18(1H, dt, J=1.4, 7.8Hz), 8.33(1H, t, J=2.0Hz), 8.64(1H, d, J=16.6Hz).

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(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 331	(CDCl ₃) δ 7.44(1H, dd, J=4.4, 7.8Hz), 7.57(1H, t, J=7.8Hz), 7.73(2H, s), 7.78(1H, d, J=7.8Hz), 7.84(1H, s), 7.90(1H, d, J=7.8Hz), 8.23(1H, dd, J=2.0, 7.8Hz), 8.29(1H, s), 8.41(1H, s). 8.55 (1H, dd, J=2.0, 4.9Hz).
10 332	δ 7.43-7.57(4H, m), 7.79(1H, d, J=7.8Hz), 7.92(2H, s), 8.00(2H, d, J=6.9Hz), 8.18(1H, d, J=8.3Hz), 8.35(1H, t, J=2.0Hz), 8.59(1H, s), 9.86(1H, s).
15 333	(CDCl ₃) δ 7.30-7.62(4H, m), 7.75(1H, d, J=7.8Hz), 7.84(1H, d, J=7.8Hz), 7.89-7.92(3H, m), 7.93 (2H, s), 8.03(1H, s), 8.31(1H, s).
334	(CDCl ₃) δ 7.20-7.25(1H, m), 7.35(1H, t, J=6.3Hz), 7.54-7.58(2H, m), 7.79(1H, d, J=6.3Hz), 7.90-7.94(2H, m), 7.95(2H, s), 8.19(1H, t, J=8.3Hz), 8.33(1H, J=2.0Hz), 8.64(1H, d, J=16.1Hz).
335	(CDCl ₃) δ 7.51-7.62(4H, m), 7.77(1H, d, J = 7.3Hz), 7.89-7.93(3H, m), 8.02(2H, s), 8.08(1H, s), 8.26(1H, s), 8.37(1H, d, J = 14.6Hz).
20 338	(CDCl ₃) δ 7.22(1H, t, J = 7.8Hz), 7.36(1H, t, J = 7.8Hz), 7.54-7.60(2H, m), 7.78(1H, d, J = 7.8Hz). 7.90(1H, d, J = 7.8Hz), 8.03-8.04(2H, m), 8.19(1H, t, J = 7.8Hz), 8.26(1H, s), 8.41(1H, s), 8.65 (1H, d, J = 16.6Hz).
25 369	(CDCl ₃) δ 7.46(1H, dd, J = 4.4, 7.8Hz), 7.59(1H, t, J = 8.3Hz), 7.81(1H, d, J = 8.3Hz), 7.89-7.92 (1H, m), 8.04(2H, s), 8.24(1H, dd, J = 2.0, 7.8Hz), 8.27(1H, s), 8.35(1H, d, J = 13.7Hz), 8.42 (1H, s), 8.56(1H, dd, J = 1.4, 4.4Hz).
375	δ 7.25(1H, d, J = 8.3Hz), 7.27(1H, d, J = 7.8Hz), 7.56-7.64(2H, m), 7.79(1H, d, J = 7.8Hz), 7.94 (1H, d, J = 8.3Hz), 8.32(1H, s), 8.42(2H, s), 10.87(1H, s), 11.05(1H, s).
376	δ 7.53-7.64(4H, m), 7.80(1H, d, J = 7.8Hz), 7.99-8.01(2H, m), 8.09(1H, dd, J = 1.5, 7.8Hz), 8.41 (1H, d, J = 1.5Hz), 8.54(2H, s), 10.52(1H, s), 10.83(1H, s).
30 377	δ 7.19-7.30(2H, m), 7.57-7.66(2H, m), 7.81(1H, d, J = 7.8Hz), 7.95(1H, dd, J = 1.5, 7.8Hz), 8.33 (1H, t, J = 1.5Hz), 8.53(2H, s), 10.89(1H, s), 11.08(1H, s).
378	(CDCl ₃) δ 7.21-7.23(1H, m), 7.36(1H, t, J=6.9Hz), 7.55-7.59(2H, m), 7.79(1H, d, J=8.3Hz), 7.84 (1H, d, J=8.0Hz), 8.05(2H, s), 8.17-8.21(2H, m), 8.43(1H, t, J=2.0Hz), 8.65(1H, d, J=6.9Hz).
379	(CDCl ₃) δ 7.46-7.63(4H, m), 7.77(1H, d, J=7.8Hz), 7.84-7.91(3H, m), 8.00(1H, s), 8.07(2H, s), 8.14(1H, s), 8.40(1H, t, J=2.0Hz).
35 380	(CDCl ₃) δ 7.52-7.63(4H, m), 7.77(1H, d, J = 7.8Hz), 7.89(1H, s), 7.90(2H, d, J = 7.8Hz), 7.99 (1H, s), 8.03(1H, s), 8.26(2H, s), 8.39(1H, t, J = 2.0Hz).
40 383	(CDCl ₃) δ 7.21(1H, d, J = 8.3Hz), 7.36(1H, t, J = 7.8Hz), 7.55-7.61(2H, m), 7.78(1H, d, J = 7.8Hz), 7.90(1H, d, J = 8.3Hz), 8.02(1H, s), 8.19(1H, dt, J = 1.9, 8.3Hz), 8.27(2H, s), 8.41(1H, s), 8.65(1H, d, J = 16.6Hz).
414	(CDCl ₃) δ 7.44(1H, dd, J = 4.9, 7.8Hz), 7.59(1H, t, J = 8.3Hz), 7.81(1H, d, J = 7.8Hz), 7.89(1H, d, J = 8.3Hz), 8.04(1H, s), 8.23(1H, dd, J = 1.9, 7.8Hz), 8.27(2H, s), 8.37(1H, s), 8.43(1H, s), 8.55(1H, dd, J = 1.9, 4.3Hz).
45 460	δ 7.25(1H, d, J = 8.3Hz), 7.27(1H, d, J = 7.8Hz), 7.56-7.64(2H, m), 7.79(1H, d, J = 7.8Hz), 7.94 (1H, d, J = 8.3Hz), 8.32(1H, s), 8.42(2H, s), 10.87(1H, s), 11.05(1H, s).
461	(CDCl ₃) δ 2.47 (3H, s), 7.51-7.62 (5H, m), 7.75 (1H, d, J=7.8Hz), 7.89-7.93 (4H, m), 8.00 (1H, broad-s), 8.35(1H, t, J=2.0Hz).
50 462	(CDCl ₃) δ 2.47 (3H, s), 7.20-7.23 (1H, m), 7.36 (1H, t, J=7.8Hz), 7.55-7.60 (3H, m), 7.76 (1H, d, J=7.8Hz), 7.89 (1H, s), 7.92 (1H, s), 8.18-8.22 (1H, m), 8.39 (1H, s), 8.62 (1H, broad-s).
463	(CDCl ₃) δ 2.27 (3H, s), 2.41 (3H, s), 6.59 (1H, septet, J =6.4Hz), 6.72 (1H, s), 7.49-7.61 (5H, m), 7.70 (1H, d, J =7.8Hz), 7.83-7.89 (3H, m), 8.05 (1H, broad-s), 8.33 (1H, t, J =1.5Hz).
55 464	(COOI ₃) δ 2.38 (3H, s), 6.34 (1H, septet, J =6.4Hz), 6.87 (1H, s), 7.50-7.63 (5H, m), 7.72 (1H, d, J =7.8Hz), 7.88-7.90 (3H, m), 7.99 (1H, brs), 8.31 (1H, broad-s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 465	(CDCl ₃) δ 2.37 (3H, s), 6.36 (1H, septet, J = 5.9Hz), 6.87 (1H, s), 7.50-7.61 (4H, m), 7.72-7.73 (2H, m), 7.88-7.90 (3H, m), 8.06 (1H, broad-s), 8.32 (1H, s).
10 466	(CDCl ₃) δ 2.39 (3H, s), 6.36 (1H, septet, J = 5.9Hz), 6.89 (1H, s), 7.20-7.25 (1H, m), 7.35 (1H, t, J = 6.8Hz), 7.52-7.60 (2H, m), 7.70 (1H, broad-s), 7.75 (1H, d, J = 7.8Hz), 7.89 (1H, d, J = 7.8Hz), 8.17-8.21 (1H, m), 8.36 (1H, s), 8.64 (1H, broad-d, J = 16.1Hz).
15 467	(COOI ₃) δ 2.53 (3H, s), 6.35 (1H, septet, J = 5.9Hz), 6.83 (1H, s), 7.49-7.61 (4H, m), 7.66 (1H, s), 7.74 (1H, d, J = 8.3Hz), 7.88-7.92 (3H, m), 8.32 (1H, broad-s), 8.33 (1H, t, J = 1.9Hz).
20 601	δ 2.34(6H, s), 7.37(1H, t, J = 7.8Hz), 7.45(2H, s), 7.53-7.65(4H, m), 7.77-7.82 (1H, m), 8.00-8.02 (2H, m), 10.10(1H, s), 10.29(1H, s).
25 602	δ 2.36 (6H, s), 2.56 (3H, s), 7.29-7.43 (7H, m), 7.55-7.57 (1H, m), 7.75-7.78 (1H, m), 7.84-7.88 (1H, m), 8.64-8.66 (1H, m).
30 603	δ 2.37 (6H, s), 2.46 (3H, s), 7.34-7.42 (5H, m), 7.69-7.85 (4H, m), 8.11 (1H, s), 8.59-8.63 (1H, s).
35 604	δ 2.38 (6H, s), 2.45 (3H, s), 7.33-7.38 (5H, m), 7.78-7.85 (4H, m), 8.10 (1H, s), 8.61-8.65 (1H, m).
40 605	δ 2.34 (6H, s), 7.39 (1H, t, J = 7.4Hz), 7.44 (2H, s), 7.50-7.54 (1H, m), 7.76-7.80 (2H, m), 7.88 (1H, t, J = 7.4Hz), 8.12 (1H, t, J = 7.4Hz), 8.20 (1H, d, J = 1.0Hz), 10.12 (1H, s), 10.73 (1H, s).
45 606	δ 2.35 (6H, s), 7.40 (1H, t, J = 7.8Hz), 7.45 (2H, s), 7.59-7.62 (1H, m), 7.82-7.90 (2H, m), 8.44-8.50 (2H, m), 8.86 (1H, d, J = 2.0Hz), 10.12 (1H, s), 10.72 (1H, s).
50 607	δ 2.34 (6H, s), 7.40 (1H, t, J = 7.8Hz), 7.45 (2H, s), 7.57-7.62 (1H, m), 7.81-7.85 (1H, m), 8.22-8.25 (2H, m), 8.39-8.42 (2H, m), 10.12 (1H, s), 10.66 (1H, s).
55 609	δ 2.34 (6H, s), 7.39 (1H, t, J = 6.9Hz), 7.45 (2H, s), 7.58 (1H, t, J = 6.9Hz), 7.82 (1H, t, J = 6.9Hz), 8.06 (2H, d, J = 8.8Hz), 8.15 (2H, d, J = 8.8Hz), 10.12 (1H, s), 10.58 (1H, s).
60 610	δ 2.34(6H, s), 7.33-7.40(3H, m), 7.45(2H, s), 7.52-7.56(1H, m), 7.59-7.65(1H, m), 7.72-7.77 (1H, m). 8.00(1H, t, J = 7.8Hz), 10.12(1H, s), 10.35(1H, s).
65 611	δ 2.34 (6H, s), 7.38 (1H, t, J = 7.6Hz), 7.45-7.65 (5H, m), 7.78-7.83 (2H, m), 7.87 (1H, d, J = 7.6Hz), 10.10 (1H, s), 10.39 (1H, s).
70 612	δ 2.34 (6H, s), 7.35-7.45 (5H, m), 7.55-7.59 (1H, m), 7.77-7.81 (1H, m), 8.07-8.12 (2H, m), 10.09 (1H, s), 10.32 (1H, s).
75 616	δ 2.34(6H, s), 7.22-7.27(1H, m), 7.38(1H, t, J = 7.8Hz), 7.46(2H, s), 7.50-7.55(3H, m), 7.95(1H, d, J = 7.8Hz), 7.99-8.03(1H, m), 10.12(1H, s), 10.50(1H, s).
80 618	δ 2.34 (6H, s), 7.39 (1H, t, J = 7.7Hz), 7.45 (2H, s), 7.60 (1H, t, J = 7.7Hz), 7.83 (1H, t, J = 7.7Hz), 7.95 (2H, d, J = 8.3Hz), 8.20 (2H, d, J = 8.3Hz), 10.12 (1H, s), 10.56 (1H, s).
85 619	δ 2.34 (6H, s), 7.38 (1H, t, J = 7.4Hz), 7.45 (2H, s), 7.55-7.60 (3H, m), 7.81 (1H, t, J = 7.4Hz), 8.14 (2H, d, J = 8.8Hz), 10.11 (1H, s), 10.40 (1H, s).
90 620	δ 2.34 (6H, s), 3.01 (6H, s), 6.77 (2H, d, J = 9.0Hz), 7.33 (1H, t, J = 7.0Hz), 7.45 (2H, s), 7.52 (1H, t, J = 7.0Hz), 7.78 (1H, t, J = 7.0Hz), 7.90 (2H, d, J = 9.0Hz), 9.86 (1H, s), 10.07 (1H, s).
95 624	δ 2.34(6H, s), 7.23-7.28(2H, m), 7.38(1H, t, J = 7.8Hz), 7.45(2H, s), 7.52-7.64(2H, m), 8.05-8.10 (1H, m), 10.13(1H, s), 10.88(1H, s).
100 628	δ 2.34 (6H, s), 7.37-7.42(1H, m), 7.40 (2H, s), 7.55-7.58 (1H, m), 7.95-8.07 (2H, m), 8.21 (1H, dd, J = 8.9, 2.1Hz), 8.30 (1H, dd, J = 8.9, 2.1Hz), 10.13 (1H, s), 10.75 (1H, s).
105 629	δ 2.34 (6H, s), 7.39 (1H, t, J = 7.4Hz), 7.45 (2H, s), 7.52 (1H, 7.4), 7.81 (1H, dd, J = 8.3, 2.7Hz), 7.88 (1H, dd, J = 8.3, 5.6Hz), 8.10-8.16 (2H, m), 10.13 (1H, s), 10.75 (1H, s).
110 630	δ 2.33 (6H, s), 7.34-7.38 (2H, m), 7.43 (2H, s), 7.51-7.54 (1H, m), 7.58-7.60 (1H, m), 7.67-7.71 (1H, m), 8.00-8.04 (1H, m), 10.10 (1H, s), 10.54 (1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 631	δ 2.34 (6H, s), 7.37 (1H, t, J = 7.9Hz), 7.45-7.47 (3H, m), 7.52-7.56 (1H, m), 7.65 (1H, dd, J = 10.2, 2.0Hz), 7.77 (1H, t, J = 7.9Hz), 7.99-8.02 (1H, m), 10.11 (1H, s), 10.41 (1H, s).
10 633	δ 2.34 (6H, s), 7.40 (1H, t, J = 8.1Hz), 7.45 (2H, s), 7.55 (1H, t, J = 6.5Hz), 7.92 (1H, d, J = 8.1Hz), 8.10 (1H, t, J = 6.5Hz), 8.32 (1H, t, J = 8.1Hz), 8.43 (1H, s), 10.13 (1H, s), 10.84 (1H, s).
15 634	δ 2.34 (6H, s), 7.39 (1H, t, J = 8.0Hz), 7.45 (2H, s), 7.51-7.55 (1H, m), 7.83 (1H, d, J = 8.0Hz), 7.99 (1H, dd, J = 7.7, 2.2Hz), 8.12 (1H, t, J = 7.7Hz), 8.30 (1H, d, J = 2.2Hz), 10.13 (1H, s), 10.78 (1H, s).
20 638	δ 2.33 (6H, s), 7.37 (1H, t, J = 8.1Hz), 7.44 (2H, s), 7.50-7.55 (2H, m), 8.03-8.07 (1H, m), 8.26-8.31 (1H, m), 8.41-8.42 (1H, m), 10.10 (1H, s), 10.54 (1H, s).
25 639	(CDCl ₃) δ 2.38 (6H, s), 7.38 (2H, s), 7.41-7.49 (2H, m), 7.80 (1H, broad-d, J = 11.4Hz), 7.90-7.94 (1H, m), 8.32-8.35 (1H, m), 8.57-8.59 (1H, m), 8.62-8.65 (1H, m), 8.74 (1H, s).
30 648	δ 1.80-1.86 (2H, m), 2.05 (3H, s), 2.33-2.38 (8H, m), 3.99 (2H, t, J = 5.1 Hz), 7.29 (1H, t, J = 7.4Hz), 7.44-7.48 (3H, m), 7.79 (1H, d, J = 7.4Hz), 9.25 (1H, s), 10.04 (1H, s).
35 649	δ 2.29(6H, s), 7.45(2H, s), 7.54-7.66(3H, m), 7.77(1H, d, J = 8.8Hz), 7.94(1H, dd, J = 2.0, 8.1Hz), 8.00-8.03(2H, m), 8.19(1H, d, J = 2.0Hz), 10.10(1H, s), 10.29(1H, s).
40 650	δ 2.29(6H, s), 7.45(2H, s), 7.48-7.65(4H, m), 7.93-8.02(3H, m), 8.23(1H, dd, J = 2.4, 7.3Hz), 10.03(1H, s), 10.32(1H, s).
45 651	δ 2.29(6H, s), 7.45(2H, s), 7.54(1H, dd, J = 8.8, 9.8Hz), 7.96-8.01(1H, m), 8.23(2H, d, J = 8.8Hz), 8.26(1H, dd, J = 2.4, 8.8Hz), 8.40(2H, d, J = 8.8Hz), 10.05(1H, s), 10.70(1H, s).
50 652	δ 2.29(6H, s), 7.45(2H, s), 7.51-7.56(1H, m), 7.96-8.00(1H, m), 8.06(2H, d, J = 8.3Hz), 8.15(2H, d, J = 8.3Hz), 8.25(1H, dd, J = 2.0, 7.3Hz), 10.05(1H, s), 10.61(1H, s).
55 653	δ 2.29(6H, s), 7.33-7.40(2H, m), 7.45(2H, s), 7.49-7.54(1H, m), 7.59-7.65(1H, m), 7.73-7.77 (1H, m), 7.91-7.95(1H, m), 8.42(1H, d, J = 6.3Hz), 10.05(1H, s), 10.35(1H, s).
654	δ 2.29(6H, s), 7.37-7.45(4H, m), 7.51(1H, dd, J = 8.8, 9.8Hz), 7.93-7.98(1H, m), 8.06-8.10(2H, m), 8.22(1H, dd, J = 2.0, 7.3Hz), 10.03(1H, s), 10.37(1H, s).
655	δ 2.29(6H, s), 7.45(2H, s), 7.51-7.56(1H, m), 7.94-8.00(3H, m), 8.20(2H, d, J = 8.3Hz), 8.25 (1H, dd, J = 2.0, 7.3Hz), 10.05(1H, s), 10.59(1H, s).
656	δ 2.29(6H, s), 7.23-7.28(1H, m), 7.42-7.54(4H, m), 7.80-7.87(1H, m), 7.91-7.95(1H, m), 8.41 (1H, d, J = 5.9Hz), 10.05(1H, s), 10.36(1H, s).
657	δ 2.30(6H, s), 7.46(2H, s), 7.50-7.59(2H, m), 7.92-7.96(1H, m), 8.10(1H, dd, J = 2.0, 7.3Hz), 8.52-8.56(2H, m), 10.07(1H, s), 10.73(1H, s).
658	δ 2.31(6H, s), 7.47(2H, s), 7.55-7.59(2H, m), 7.62-7.66(1H, m), 8.01-8.04(2H, m), 8.09(1H, s), 8.54(1H, s), 8.66(1H, s), 10.27(1H, s), 10.79(1H, s).
659	δ 2.34(6H, s), 7.40(1 H, t, J = 9.3Hz), 7.45(2H, s), 7.53-7.64(3H, m), 7.97-8.05(3H, m), 8.14(1H, dd, J = 2.9, 6.3Hz), 10.03(1H, s), 10.48(1H, s).
660	δ 2.40(6H, s), 7.45(2H, s), 7.54-7.65(4H, m), 7.97-8.03(3H, m), 8.09(1H, d, J = 2.4Hz), 10.20 (1H, s), 10.56(1H, s).
661	δ 2.41 (6H, s), 7.45(2H, s), 7.54-7.65(3H, m), 7.72(1H, d, J = 8.8Hz), 7.94-7.99(3H, m), 8.08 (1H, d, J = 2.9Hz), 10.20(1H, s), 10.56(1H, s).
662	δ 2.44(6H, s), 7.45(2H, s), 7.53-7.65(3H, m), 7.79(1H, dd, J = 2.4, 8.3Hz), 7.90-7.98 (3H, m), 8.05(1H, d, J = 2.4Hz), 10.15(1H, s), 10.53(1H, s).
663	δ 2.35(6H, s), 7.32(1H, t, J = 8.3), 7.46(2H, s), 7.54-7.77(4H, m), 8.00(2H, dd, J = 1.5, J=8.3), 10.3(1H,s),10.6(1H,s).
664	(CDCl ₃) δ 2.53(6H, s), 7.35(2H, s), 7.52-7.63(5H, m), 7.92(2H, d, J = 8.8Hz), 8.46(1H, d, J = 8.8Hz), 8.57(1H, s).

(continued)

comp. No.	1H-NMR (DMSO-d ₆ , ppm)
5 665	δ 2.34(6H, s), 7.37(1H, t, J = 7.8Hz), 7.44(2H, s), 7.53-7.65(4H, m), 7.77-7.81(1H, m), 7.99-8.02 (2H, m), 10.09(1H, broad), 10.29(1H, broad).
10 668	δ 2.34(6H, s), 7.33-7.40(3H, m), 7.44(2H, s), 7.51-7.56(1H, m), 7.58-7.65(1H, m), 7.72-7.77 (1H, m), 8.00(1H, t, J = 8.3Hz), 10.10(1H, s), 10.34(1H, s).
15 670	δ 2.28 (6H, s), 7.31-7.44 (5H, m), 7.57 (1H, t, J = 6.3Hz), 7.79 (1H, t, J = 7.3Hz), 8.07-8.09 (2H, m), 10.09 (1H, s), 10.32 (1H, s).
20 676	δ 7.34 (6H, s), 7.39 (1H, t, J = 7.2Hz), 7.44 (2H, s), 7.59 (1H, t, J = 7.2Hz), 7.83 (1H, t, J = 7.2Hz), 7.99 (2H, d, J = 8.8Hz), 8.15 (2H, d, J = 8.8Hz), 10.1 (1H, s), 10.57 (1H, s).
25 679	δ 2.35 (6H, s), 7.4 (1H, t, J = 7.3Hz), 7.44 (2H, s), 7.61 (1H, t, J = 7.3Hz), 7.84 (1H, t, J = 7.3Hz), 8.24 (2H, d, J = 8.8Hz), 8.41 (2H, d, J = 8.8Hz), 10.11 (1H, s), 10.66 (1H, s).
30 682	δ 2.35 (6H, s), 7.38 (1H, t, J = 8.1Hz), 7.44 (2H, s), 7.49 (1H, d, J = 8.1Hz), 7.56 (1H, d, J = 8.1Hz), 8.07 (2H, d, J = 8.8Hz), 8.14 (2H, d, J = 8.8Hz), 10.1 (1H, s), 10.43 (1H, s).
35 686	δ 2.34(6H, s), 7.23-7.28(2H, m), 7.38(1H, t, J = 7.8Hz), 7.44(2H, s), 7.52-7.65(2H, m), 8.05-8.10 (1H, m), 10.12(1H, s), 10.88(1H, s).
40 699	δ 2.34 (6H, s), 3.39 (3H, s), 7.39 (1 H, t, J = 7.8Hz), 7.44 (2H, s), 7.49-7.59 (2H, m), 8.08-8.13 (2H, m), 8.55 (1H, dd, J = 4.9, 2.0Hz), 10.12 (1H, s), 10.73 (1H, s).
45 708	(CDCl ₃) δ 7.39(1H, t, J = 7.8Hz), 7.48-7.64(3H, m), 7.88-7.96(4H, m), 8.09-8.13(2H, m), 8.69 (1H, t, J = 7.8Hz), 8.75(1H, d, J = 7.8Hz).
50 711	(CDCl ₃) δ 7.22(1H, d, J = 8.3Hz), 7.35-7.40(2H, m), 7.56-7.62(1H, m), 7.91(1H, t, J = 7.3Hz), 7.96(2H, s), 8.15(1H, d, J = 13.3Hz), 8.22(1H, dt, J = 1.9, 8.3Hz), 8.73(1H, dt, J = 1.5, 8.3Hz), 8.92(1H, d, J = 17.1Hz).
1001	(CDCl ₃) δ 7.41(1H, t, J = 8.3Hz), 7.85(2H, d, J = 8.3Hz), 7.92(1H, d, J = 6.9Hz), 7.96(2H, s), 8.03(2H, d, J = 8.3Hz), 8.06(1H, s), 8.10(1H, s), 8.63(1H, dt, J = 1.5, 8.3Hz).
1013	δ 2.20(6H, s), 3.45(3H, s), 7.23-7.30(5H, m), 7.43-7.45(4H, m), 7.73-7.76(2H, m), 9.88(1H, s).
1016	δ 2.21 (6H, s), 3.46 (3H, s), 7.40-8.03 (10H, m), 9.91 (1H, s).
1032	δ 2.08(3H, s), 2.30(6H, s), 7.45(2H, s), 7.47(1H, d, J = 7.8Hz), 7.54(1H, t, J = 7.8Hz), 7.66(1H, d, J = 7.8Hz), 7.75(1H, d, J = 7.8Hz), 7.82(1H, d, J = 7.8Hz), 8.04(1H, dd, J = 2.0, 7.8Hz), 8.13 (1H, s), 8.35(1H, s), 9.99(1H, s), 10.16(1H, s), 10.48(1H, s).
1043	(CDCl ₃) δ 1.38(6H, m), 2.37(6H, s), 3.13(1H, broad), 3.33(3H, broad), 3.78(1H, broad), 3.89 (1H, broad), 7.37(2H, s), 7.48(1H, d, J = 7.8Hz), 7.58(1H, t, J = 7.8Hz), 7.77(1H, s), 7.90(1H, s), 7.93(1H, broad).

(continued)

	comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5	1089	(CDCl ₃) δ 0.89(3H, t, J 7.3Hz), 1.53-1.62(2H, m), 2.61 (2H, t, J = 7.3Hz), 3.50(3H, broad), 6.80 (1H, broad), 7.03(1H, broad), 7.22(1H, broad), 7.34(3H, broad), 7.47(1H, s), 7.67-7.76(3H, broad-m), 7.93(1 H, s).
10	1091	(CDCl ₃) δ 0.88(3H, t, J 7.3Hz), 1.53-1.63(2H, m), 2.62(2H, t, J = 7.8Hz), 3.52(3H, s), 6.83-6.89 (2H, m), 7.26-7.32(3H, m), 7.4(1H, t, J = 7.8Hz), 7.48(1H, s), 7.66(1H, s), 7.76(2H, d, J = 8.8Hz), 7.93(1H, d, J=1.5Hz).
15	1097	(CDCl ₃) δ 0.90(3H, t, J = 7.3Hz), 1.55-1.65(2H, m), 2.64(2H, t, J 7.8Hz), 3.55(3H, s), 7.27(1H, s), 7.40-7.44(3H, m), 7.49-7.51(3H, m), 7.59(1H, s), 7.69(1H, s), 7.76(1H, d, J = 7.8Hz), 7.95 (1H, s).
20	1100	(CDCl ₃) δ 0.88(3H, t, J = 7.3Hz), 1.54-1.64(2H, m), 2.63(2H, t, J = 7.8Hz), 3.56(3H, s), 7.29(1 H, s), 7.40-7.50(4H, m), 7.59(1H, s), 7.71(1H, s), 7.76(1H, d, J = 7.3Hz), 7.94(1H, d, J = 1.5Hz), 8.06(2H, d, J = 8.8Hz).
25	1125	(COCl ₃) δ 2.25(6H, s), 3.54(3H, s), 6.84(1H, broad-s), 7.00-7.10(2H, m), 7.20-7.40(6H, m), 7.50-7.60(1H, broad), 7.60-7.70(1H, broad).
30	1126	(COCl ₃) δ 3.57(3H, s), 7.20-7.24(2H, m), 7.29-7.32(3H, m), 7.34(1H, t, J=7.8Hz), 7.40-7.44(2H, m), 7.57(1H, d, J=7.8Hz), 7.86-7.91(1H, m), 7.92(2H, s).
35	1206	δ 1.17 (3H, broad), 2.22 (6H, s), 3.94 (2H, broad), 7.01-7.08 (2H, m), 7.29-7.43 (6H, m), 7.72-7.77 (2H, m), 9.90 (1H, s).
40	1207	δ 1.26 (3H, t, J =6.8Hz), 2.04 (6H, s), 4.11 (2H, q, J =6.8Hz), 7.16-7.70 (12H, m).
45	1208	δ 2.28 (6H, s), 3.36 (3H, s), 7.27-7.32 (6H, m), 7.43 (2H, s), 7.55-7.57 (2H, broad), 9.96 (1H, s).
50	1209	δ 2.28 (6H, s), 3.47 (3H, s), 6.98 (1H, broad), 7.11 (2H, broad), 7.19 (1H, broad), 7.37 (1H, broad), 7.44 (2H, s), 7.51 (1H, broad), 7.74 (1H, broad), 9.94 (1H, s).
55	1210	δ 2.23 (3H, s), 2.29 (6H, s), 7.07-7.26 (5H, m), 7.44 (2H, s), 7.56-7.77 (2H, m), 9.98 (1H, s).
	1211	δ 2.24 (3H, s), 2.28 (6H, s), 7.08-7.09 (2H, m), 7.22-7.28 (2H, m), 7.44 (2H, s), 7.51-7.58 (3H, m), 9.99 (1H, s).
	1212	δ 2.29 (6H, s), 3.12 (3H, s), 7.17-8.02 (9H, m), 9.95 (1H, s).
	1213	δ 2.26 (6H, s), 3.41 (3H, s), 7.12-8.34 (9H, m), 9.92 (1H, s).
	1214	δ 2.26 (6H, s), 3.40 (3H, s), 7.29 (1H, broad), 7.44 (2H, s), 7.59-7.81 (4H, m), 8.12 (2H, broad), 9.91 (1 H, s).
	1215	δ 2.26 (6H, s), 3.40 (3H, s), 7.31-7.39 (7H, m), 7.50-7.56 (1H, m), 7.81-7.83 (1H, m), 9.94 (1H, s).
	1216	δ 2.27 (6H, s), 3.39 (3H, s), 7.31 (1H, m), 7.47 (2H, s), 7.60-7.67 (3H, m), 7.72-7.80 (3H, m), 9.96 (1H, s).
	1217	δ 2.27 (6H, s), 3.37 (3H, s), 7.29 (2H, broad), 7.44-7.48 (3H, m), 7.59-7.64 (2H, m), 7.76 (2H, broad), 9.94 (1H, s).
	1218	δ 2.27 (6H, s), 3.39 (3H, s), 7.03-7.72 (9H, m), 9.94 (1H, s).
	1219	δ 2.28 (6H, s), 3.36 (3H, s), 7.18-8.04 (9H, m), 9.98 (1H, m).
	1220	δ 2.28 (6H, s), 3.34 (3H, s), 7.12-7.56 (9H, m), 9.97 (1H, s).
	1229	δ 2.28 (6H, s), 3.39 (3H, s), 7.02-7.28 (2H, m), 7.35-7.43 (2H, m), 7.55-7.70 (2H, m), 7.93-7.99 (2H, m), 9.95 (1H, m).
	1235	δ 2.26(6H, s), 3.43(3H, s), 7.27(1H, t, J = 7.8Hz), 7.44(2H, s), 7.58-7.65(2H, m), 7.71(1H, t, J = 7.8), 8.00(1H, dd, J = 8.3,2.0Hz), 8.04(1H, dd, J = 9.3,2.0Hz), 9.91(1H, s).
	1236	δ 2.29 (6H, s), 3.41 (3H, s), 7.44-7.46 (3H, m), 7.59-7.61 (2H, m), 7.72-7.77 (1H, m), 7.88 (1H, d, J =6.8Hz), 7.95-7.99 (1H, m), 9.95 (1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 1237	δ 2.29 (6H, s), 3.40 (3H, s), 7.08-7.91 (8H, m), 9.94 (1H, s).
10 1238	δ 2.28 (6H, s), 3.39 (3H, s), 7.21-7.28 (1H, m), 7.34-7.44 (3H, m), 7.54-7.60 (2H, m), 7.79-7.91 (2H, m), 9.95 (1H, m).
15 1245	δ 2.28 (6H, s), 3.41 (3H, s), 7.25 (1H, t, J = 7.6Hz), 7.36 (1H, d, J = 4.7Hz), 7.44 (2H, s), 7.57-7.64 (2H, m), 7.92 (1H, d, J = 7.6Hz), 8.32 (1H, dd, J = 4.7, 1.9Hz), 9.97 (1H, s).
20 1246	δ 2.31 (6H, s), 3.60 (3H, s), 7.25-7.31 (2H, m), 7.44 (2H, s), 7.57-7.59 (2H, m), 7.97-8.01 (1H, m), 8.17-8.18 (1H, m), 9.97 (1H, s).
25 1247	δ 2.28 (6H, s), 3.39 (3H, s), 7.33 (1H, d, J = 7.6Hz), 7.44 (2H, s), 7.61-7.69 (3H, m), 7.80 (1H, broad), 8.30 (1H, broad), 10.01 (1H, s).
30 1255	δ 2.29 (6H, s), 3.35 (3H, s), 7.19-7.70 (10H, m), 9.98 (1H, s).
35 1256	δ 2.28 (6H, s), 2.30 (3H, s), 3.32 (3H, s), 6.98-7.72 (9H, m), 9.93 (1H, s).
40 1257	δ 2.23 (3H, s), 2.29 (6H, s), 3.34 (3H, s), 7.07-7.38 (5H, m), 7.53-7.76 (2H, m), 7.43 (2H, s), 9.98 (1H, s).
45 1258	δ 2.27 (6H, s), 2.33 (3H, s), 3.31 (3H, s), 6.98-7.51 (9H, s), 9.93 (1H, s).
50 1259	δ 2.29 (6H, s), 3.41 (3H, s), 7.18 (1H, d, J = 7.3Hz), 7.44 (2H, s), 7.46-7.57 (2H, m), 7.67 (1H, t, J = 7.3Hz), 7.73-7.82 (2H, m), 8.01 (1H, d, J = 7.8Hz), 9.95 (1H, s).
55 1260	δ 2.26 (6H, s), 3.36 (3H, s), 7.42 (2H, s), 7.59 (1H, broad), 7.7 (1H, broad), 7.82 (1H, t, J = 7.9Hz), 8.2 (1H, broad), 8.34-8.37 (1H, m), 8.48 (1H, dd, J = 7.9, 1.7Hz), 8.62 (1H, t, J = 2.0Hz), 9.92 (1H, s).
1261	δ 2.27 (6H, s), 3.37 (3H, s), 7.43 (2H, s), 7.59-7.65 (2H, m), 8.11 (1H, broad), 8.18 (2H, d, J = 8.8Hz), 8.29 (2H, d, J = 8.8Hz), 9.91 (1H, s).
1262	δ 2.33 (6H, s), 3.35 (3H, s), 7.30-7.83 (9H, m), 9.93 (1H, s).
1263	δ 2.27 (6H, s), 3.37 (3H, s), 7.18-7.80 (9H, m), 9.96 (1H, s).
1264	δ 2.27 (6H, s), 3.35 (3H, s), 7.43 (2H, s), 7.48 (1H, broad), 7.58 (1H, broad), 7.75 (1H, broad), 7.99 (2H, d, J = 8.5Hz), 8.08 (2H, d, J = 8.5Hz), 9.95 (1H, s).
1265	δ 2.27 (6H, s), 3.36 (3H, s), 7.03-7.73 (9H, m), 9.93 (1H, s).
1266	δ 2.28 (6H, s), 3.35 (2H, s), 7.18-7.61 (9H, m), 9.99 (1H, s).
1267	δ 2.28 (6H, s), 3.39 (3H, s), 7.11-7.18 (3H, m), 7.26-7.30 (1H, t, J = 7.8Hz), 7.40-7.47 (3H, m), 7.58 (2H, t, J = 7.6Hz), 9.96 (1H, s).
1274	δ 2.27 (6H, s), 3.37 (3H, s), 7.29 (3H, broad), 7.41-7.47 (4H, m), 7.59-7.61 (2H, m), 9.95 (1H, s).
1293	δ 2.28 (6H, s), 3.41 (3H, s), 7.25 (1H, t, J = 7.6Hz), 7.35 (1H, dd, J = 7.3, 4.9Hz), 7.43 (2H, s), 7.57-7.63 (2H, m), 7.91 (1H, d, J = 7.6Hz), 8.32 (1H, dd, J = 4.9, 2.0Hz), 9.96 (1H, s).
1294	δ 2.28 (6H, s), 3.39 (3H, s), 7.31-7.35 (1H, m), 7.42 (2H, s), 7.43-7.48 (1H, m), 7.61-7.75 (2H, m), 7.80 (1H, s), 8.32 (1H, broad), 10.01 (1H, s).
1463	δ 2.25 (6H, s), 3.38 (3H, s), 7.27-7.41 (6H, m), 7.45 (2H, s), 7.90 (1H, broad), 8.05 (1H, d, J = 6.8Hz), 9.96 (1H, s).
1464	δ 2.23 (6H, s), 3.42 (3H, s), 7.41 (1H, broad), 7.45 (2H, s), 7.60 (2H, broad), 7.90 (1H, broad), 8.08-8.13 (3H, broad), 9.93 (1H, s).
1465	δ 2.25 (6H, s), 3.40 (3H, s), 7.39-7.42 (1H, m), 7.45 (2H, s), 7.50 (1H, broad), 7.78 (1H, broad), 7.91 (1H, broad), 7.97-8.10 (3H, m), 9.94 (1H, s).
1478	δ 2.29 (6H, s), 3.24 (3H, s), 6.84 (1H, d, J = 7.8Hz), 7.12 (1H, t, J = 7.8Hz), 7.33 (2H, s), 7.50-7.64 (4H, m), 7.85-7.88 (2H, m), 7.98-8.03 (1H, m), 10.22 (1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 1479	δ 2.41(3H, s), 3.25(3H, s), 6.95(1H, dd, J = 1.5, 7.8Hz), 7.16(1H, t, J = 7.8Hz), 7.50-7.64(4H, m), 7.68(1H, s). 7.86-7.88(2H, m), 7.93(1H, t, J = 1.5Hz), 7.98-8.00(1H, m), 10.24(1H, s).
10 1480	(CDCl ₃) δ 3.34(3H, s), 7.13-7.19(2H, m), 7.49-7.58(3H, m), 7.70-7.73(2H, m), 7.78-7.91(4H, m), 8.12(1H, s).
1481	(CDCl ₃) δ 3.35(3H, s), 7.15-7.20(3H, m), 7.32(1H, t, J = 7.8Hz), 7.51-7.55(1H, m), 7.71(1H, d, J = 2.9Hz), 7.72(1H, d, J = 2.0Hz), 7.80(2H, s), 8.14(1H, dt, J = 2.0, 7.8Hz), 8.37(1H, d, J = 16.1 Hz).
1482	δ 1.18(3H, t, J = 7.3Hz), 2.30(6H, s), 3.76(2H, q, J = 7.3Hz), 6.81(1H, d, J = 7.8Hz), 7.11(1H, t, J 7.8Hz), 7.33(2H, s), 7.50-7.62(4H, m), 7.84-7.88(2H, m), 7.95-8.00 (1H, m), 10.20(1H, s).
1483	δ 1.44(6H, d, J = 6.3Hz), 2.07(6H, s), 5.35(1H, septet, J = 6.3Hz), 6.84(1H, d, J = 7.8Hz), 7.21 (1H, t, J = 7.8Hz), 7.21(2H, s), 7.50-7.61(3H, m), 7.75(1H, dd, J = 1.5, 7.8Hz), 7.86-7.89(3H, m), 10.29(1H, s).
1484	δ 2.18 (3H, s), 2.32 (6H, s), 7.37-7.59 (11H, m), 10.42 (1H, s).
1485	δ 2.34 (3H, s), 2.35 (6H, s), 7.34-8.02 (10H, m), 10.33 (1H, s).
1486	δ 2.33 (3H, s), 2.36 (6H, s), 7.29-8.12 (9H, m), 10.37 (1H, s).
1487	δ 2.20 (6H, s), 3.08 (3H, s), 3.20 (3H, s), 6.93-7.39 (10H, m), 7.45-7.51 (1H, m).
1607	(CDCl ₃) δ 3.31(3H, s), 3.35(3H, s), 6.81(1H, dt, J = 6.8, 1.0Hz), 6.94(1H, t, J = 7.8Hz), 7.10-7.24 (5H, m), 7.35-7.40(1H, m), 7.41(1H, s), 7.78(2H, s).
1617	(CDCl ₃) δ 3.30(3H, s), 3.33(3H, s), 6.76-7.00(4H, m), 7.19-7.23(3H, m), 7.37(1H, s), 7.77(2H, s).
1645	(CDCl ₃) δ 3.30(3H, s), 3.36(3H, s), 6.96-7.06(3H, m), 7.12-7.16(1H, m), 7.39-7.42(2H, m), 7.95 (2H, s), 8.24(1H, s).
1654	(CDCl ₃) δ 3.30(3H, s), 3.42(3H, s), 7.01(1H, d, J = 7.3Hz), 7.10(1H, t, J = 7.8Hz), 7.16(1H, dd, J = 1.4, 7.8Hz), 7.41(1H, t, J = 1.4Hz), 7.54(1H, dd, J = 1.9Hz), 7.56(1H, d, J = 1.9Hz), 7.80 (1H, s), 7.81(2H, s).
1655	(CDCl ₃) δ 3.29(3H, s), 3.38(3H, s), 3.78(3H, s), 6.73(1H, d, J = 8.3Hz), 6.96(1H, d, J = 8.3Hz), 7.04(1H, t, J = 7.8Hz), 7.08(1H, d, J = 1.5Hz), 7.14(1H, d, J = 7.8Hz), 7.40(1H, s), 7.54(1H, d, J = 8.3Hz), 7.81(2H, s).
1697	δ 2.23 (6H, s), 3.32 (3H, s), 3.39 (3H, s), 7.15-7.43 (10H, m).
2001	(CDCl ₃) δ 2.36 (6H, s), 7.36 (2H, s), 7.53-7.57 (2H, m), 7.61-7.65 (1H, m), 7.95-8.03 (3H, m), 8.08 (1H, dd, J=7.3,1.0Hz), 8.52 (1H, broad-s), 8.62 (1H, dd, J=8.3,1.0Hz), 9.19 (1H, broad-s).
2004	δ 2.30 (6H, s), 7.37-7.43 (2H, m), 7.46 (2H, s), 7.65 (1H, d, J=8.1Hz), 7.83 (1H, dd, J=7.5,5.6Hz), 7.88 (1H, d, J=7.5Hz), 8.13 (1H, t, J=8.1Hz), 8.40 (1H, d, J=8.1Hz), 10.08 (1H, s), 10.62 (1H, s).
2032	δ 2.30 (6H, s), 7.46 (2H, s), 7.75-7.78 (1H, m), 7.91 (1H, dd, J=7.3,1.0Hz), 8.13-8.18 (2H, m), 8.27 (1H, d, J=8.0Hz), 8.56 (1H, d, J=8.0Hz), 8.77 (1H, d, J=1.0Hz), 10.62 (1H, s), 10.75 (1H, s).
2033	δ 2.27(6H, s), 6.16(2H, s), 6.71(1H, d, J = 7.6Hz), 7.01(2H, d, J = 1.0Hz), 7.24(1H, d, J = 6.9Hz), 7.42(2H, s), 7.59(1H, dd, J = 7.6,6.9Hz), 7.65(1H, s), 9.94(1H, s).
2034	δ 2.32 (6H, s), 7.47 (2H, s), 7.90-7.93 (3H, m), 8.15 (1H, t, J = 8.0Hz), 8.37 (1H, d, J =8.0Hz), 8.83 (2H, dd, J =4.6,1.7Hz), 10.12 (1H, s), 10.92 (1H, s).
2035	δ 2.30 (6H, s), 7.46 (2H, s). 7.55-7.56 (1H, m), 7.89 (1H. d, J =7.4Hz), 8.14 (1H, t, J =7.8Hz), 8.34-8.41 (2H, m), 8.45 (1H, dd, J =5.4.1.2Hz), 10.03 (1H, s), 10.90 (1H, s).
2036	δ 2.29 (6H, s), 7.45 (2H, s), 7.59 (1H, t, J =6.3Hz), 7.88 (1H, d. J =6.3Hz), 8.12-8.16 (2H, m), 8.39 (1H, m). 8.55 (1H, m), 9.93 (1H, s), 11.25 (1H, s).

(continued)

	comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5	2037	δ 2.32 (6H, s), 7.47 (2H, s), 7.67 (1H, d, J=7.6Hz), 7.75 (1H, d, J=8.3Hz), 7.90 (1H, d, J=7.6Hz), 8.14 (1H, t, J=7.6Hz), 8.29 (1H, dd, J=8.3Hz, 2.0Hz), 8.89 (1H, d, J=2.0Hz), 10.07 (1H, s), 10.97 (1H, s).
10	2082	δ 2.20 (6H, s), 3.58 (3H, s), 7.29-7.39 (5H, m), 7.43 (2H, s), 7.50 (1H, d, J=7.4Hz), 7.83 (1H, t, J=7.4Hz), 7.94 (1H, t, J=7.4Hz), 9.91 (1H, s).
15	2085	δ 2.22 (6H, s), 3.57 (3H, s), 7.12 (1H, t, J=9.2Hz), 7.20 (1H, t, J=7.3Hz), 7.28-7.30 (1H, m), 7.44 (2H, s), 7.55 (1H, t, J=7.2Hz), 7.63 (1H, broad), 7.87 (1H, d, J=7.2Hz), 7.98 (1H, t, J=7.2Hz), 9.90 (1H, s).
20	2093	δ 2.14 (6H, s), 3.57 (3H, s), 7.42 (2H, s), 7.66-7.87 (3H, m), 7.96-8.09 (4H, m), 9.77 (1H, s).
25	2116	δ 2.23 (6H, s), 3.55 (3H, s), 7.45 (3H, s), 7.89-9.91 (2H, m), 8.03-8.10 (3H, m), 9.82 (1H, s).
30	2117	δ 2.13 (6H, s), 3.58 (3H, s), 7.42 (2H, s), 7.46 (1H, d, J=8.2Hz), 7.72-7.75 (2H, m), 7.90 (1H, d, J=8.2Hz), 8.08 (1H, t, J=8.2Hz), 8.35 (1H, d, J=2.0Hz), 9.83 (1H, s).
35	2162	(CDCl ₃) δ 2.38 (6H, s), 7.38 (2H, s), 7.53-7.57 (2H, m), 7.62 (1H, d, J=7.8Hz), 7.68 (1H, dd, J=4.9, 1.5Hz), 7.85 (1H, broad-s), 7.95 (2H, d, J=7.8Hz), 8.52 (1H, d, J=4.9Hz), 8.22 (1H, broad-s), 8.88 (1H, s).
40	2163	(CDCl ₃) δ 2.36 (6H, s), 7.38 (2H, s), 7.55-7.59 (2H, m), 7.64-7.72 (2H, m), 7.75 (1H, broad-s), 8.01 (2H, d, J=7.3Hz), 8.41 (1H, d, J=6.8Hz), 9.14 (1H, d, J=2.4Hz), 10.9 (1H, broad-s).
45	2164	(CDCl ₃) δ 2.34 (6H, s), 7.47 (2H, s), 7.62-7.65 (2H, m), 7.70-7.81 (2H, m), 8.04-8.04 (3H, m), 8.64 (1H, dd, J=8.3, 1.5Hz), 10.9 (1H, broad-s), 12.3 (1H, broad-s).
50	2165	δ 2.35 (6H, s), 7.29-8.03 (10H, m), 8.75 (1H, d, J=2.0Hz).
	2168	δ 2.25 (6H, s), 3.32 (3H, s), 7.26 (1H, d, J=7.7Hz), 7.38 (1H, d, J=7.7Hz), 7.44 (2H, s), 7.55 (1H, t, J=7.7Hz), 7.90 (3H, m), 8.11 (2H, m), 12.40 (1H, s).
	2201	(CDCl ₃) δ 2.38 (6H, s), 7.25-8.00 (11H, m), 8.34 (1H, s), 8.85 (1H, broad.).
	2202	(CDCl ₃) δ 2.36 (6H, s), 7.37 (2H, s), 7.47-7.61 (5H, m), 7.85-8.03 (4H, m), 8.57 (1H, s), 9.18 (1H, s).
	2203	(CDCl ₃) δ 2.38 (6H, s), 7.41 (2H, s), 7.45-7.55 (4H, m), 7.90-7.96 (4H, m), 8.57 (1H, broad), 8.74 (1H, broad), 9.18 (1H, broad).
	I-1	δ 2.34 (6H, s), 3.87 (2H, broad-s), 6.86-6.89 (1H, m), 7.21-7.30 (3H, in), 7.33 (2H, s), 7.39 (1H, s)
	I-2	δ 2.34 (6H, s), 3.87 (2H, broad), 6.86-6.89 (1H, m), 7.20-7.35 (6H, m)
	I-4	δ 2.60 (3H, s), 3.92 (2H, broad-s), 6.89-6.92 (1H, m), 7.24-7.32 (3H, m), 7.46 (1H, s), 7.76 (1H, broad-s)
	I-5	δ 2.27 (6H, s), 3.31 (3H, s), 6.40-6.43 (1H, m), 6.54-6.58 (1H, m), 6.71 (1H, t, J=2.0Hz), 6.76-6.86 (1H, m), 7.22 (2H, s)
	I-6	δ 1.45 (6H, d, J=6.3Hz), 2.07 (6H, s), 3.53 (2H, broad), 5.37 (1H, septet, J=6.3Hz), 6.56-6.63 (3H, m), 6.96 (1H, t, J=7.8Hz), 7.16 (2H, s)
	I-7	δ 1.17 (3H, t, J=7.6Hz), 2.28 (3H, s), 2.65 (2H, q, J=7.6Hz), 3.85 (2H, broad-s), 6.82-6.85 (1H, m), 7.21-7.23 (3H, m), 7.34 (2H, s), 7.64 (1H, s)
	I-8	δ 1.22 (6H, t, J=7.6Hz), 2.69 (4H, q, J=7.6Hz), 3.86 (2H, broad-s), 6.86-6.89 (1H, m), 7.15-7.36 (4H, m), 7.38 (2H, s)
	I-9	δ 1.23 (3H, t, J=7.3Hz), 2.76 (2H, q, J=7.3Hz), 3.88 (2H, broad-s), 6.88-6.91 (1H, m), 7.26-7.32 (3H, m), 7.50 (1H, s), 7.53 (1H, s), 7.95 (1H, d, J=1.5Hz)
	I-10	δ 1.22 (6H, d, J=6.8Hz), 2.32 (3H, s), 3.17 (1H, septet, J=6.8Hz), 3.87 (2H, broad-s), 6.85-6.93 (1H, m), 7.20-7.29 (3H, m), 7.35 (1H, s), 7.40-7.45 (2H, m)

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5 I-11	δ 2.35(3H, s), 3.85(5H, s), 6.85-6.89(1H, m), 6.95(1H, s), 7.13(1H, s), 7.23-7.30(3H, m), 7.62(1H, s)
10 I-12	δ 1.25(3H, t, J=7.6Hz), 2.76(2H, q, J=7.6Hz), 3.88(2H, broad-s), 6.87-6.91(1H, m), 7.24-7.31(3H, m), 7.47(1H, s), 7.55(1H, s), 7.57(1H, s)
15 I-13	δ 2.35 (3H, s), 2.57 (3H, d, J=6.8Hz), 3.88 (2H, broad-s), 6.88-6.91 (1H, m), 7.25-7.34 (4H, m), 7.67 (1H, s)
20 I-14	δ 2.41(3H, s), 3.88(2H, broad-s), 6.87-6.91(1H, m), 7.25-7.31(3H, m), 7.47(1H, s), 7.65(1H, s), 7.72(1H, s)
25 I-15	δ 1.23(3H, t, J=7.3Hz), 2.74(2H, q, J=7.3Hz), 3.87(2H, broad-s), 6.86-6.91(1H, m), 7.25-7.31(3H, m), 7.50(1H, s), 7.59(1H, s), 7.73(1H, d, J=1.5Hz)
30 I-16	(DMSQ-d ₆) δ 0.84(3H, t, J=7.3Hz), 1.48-1.58(2H, m), 2.66(2H, t, J=7.3Hz), 5.36(2H, broad-s), 6.77(1H, dd, J=1.0Hz, 7.8Hz), 7.10-7.19(3H, m), 7.59(1H, s), 7.80(1H, s), 10.03(1H, s)
35 I-17	δ 0.90(3H, t, J=7.3Hz), 1.25-1.37(2H, m), 1.55-1.63(2H, m), 2.72(2H, t, J=7.8Hz), 3.89(2H, broad), 6.87-6.91(1H, m), 7.24-7.31(3H, m), 7.48(1H, s), 7.55(1H, s), 7.73(1H, d, J=1.5Hz)
40 I-18	δ 2.39(3H, s), 2.66(3H, d, J=6.9Hz), 7.43(1H, s), 7.75-7.79(2H, m), 8.33(1H, d, J=8.3Hz), 8.48(1H, d, J=8.3Hz), 8.80(1H, s)
45 I-19	δ 2.41(3H, s), 3.88(2H, s), 6.86-6.91(1H, m), 7.28-7.32(3H, m), 7.49(1H, s), 7.58(1H, s), 7.93(1H, d, J=1.2Hz)
50 I-20	δ 0.91(3H, t, J=7.3Hz), 1.58-1.67(2H, m), 2.69(2H, t, J=7.8Hz), 3.88(2H, broad-s), 6.87-6.90(1H, m), 7.26-7.31(3H, m), 7.50(1H, s), 7.54(1H, s), 7.95(1H, d, J=2.0Hz)
I-21	δ 2.33(6H, s), 3.87(2H, broad-s), 6.86-6.89(1H, m), 7.21-7.29(3H, m), 7.34(2H, s), 7.52(1H, s)
I-22	δ 2.32(6H, s), 3.86(2H, broad-s), 6.85-6.88(1H, m), 7.20-7.28(3H, m), 7.33(2H, s), 7.60(1H, s)
I-23	δ 3.99(2H, broad-s), 6.85-6.88(1H, m), 7.23-7.34(3H, m), 7.91(2H, s), 8.69(1H, s)
I-24	(DMSO-d ₆) δ 5.39(2H, broad-s), 6.77-6.80(1H, m), 7.12-7.19(3H, m), 8.49(2H, s), 10.53(1H, s)
I-26	δ 3.88(2H, s), 6.90(1H, d, J=6.8Hz), 7.23-7.32(3H, m), 7.60(1H, s), 7.92(2H, s)
I-27	δ 3.89(2H, broad-s), 6.90(1H, dt, J=2.5Hz, 6.3Hz), 7.25-7.32(3H, m), 7.59(1H, s), 7.72(2H, s)
I-28	δ 3.89(2H, broad-s), 6.90(1H, dt, J=2.5Hz, 6.4Hz), 7.28-7.30(3H, m), 7.60(1H, s), 7.93(2H, s)
I-29	δ 3.92(2H, s), 6.92(1H, dt, J=1.5Hz, 7.3Hz), 7.23-7.30(3H, m), 7.79(1H, s), 8.04(2H, s)
I-30	δ 3.89(2H, broad-s), 6.90(1H, dd, J=2.4Hz, 4.9Hz), 7.23-7.32(3H, m), 7.61(1H, s), 7.93(2H, s)
I-31	δ 3.88(2H, broad-s), 6.90(1H, d, J=6.3Hz), 7.23-7.32(3H, m), 7.62(1H, s), 7.92(2H, s)
I-32	δ 6.90-6.94(1H, m), 7.28-7.33(3H, m), 7.73(1H, s), 8.02(1H, s), 8.25(1H, s)
I-33	δ 2.31(6H, s), 2.90(3H, s), 6.81(1H, dd, J=1.9Hz, 7.8Hz), 7.15-7.18(2H, m), 7.30(1H, t, J=7.8Hz), 7.42(1H, s), 7.52(2H, s)
I-35	δ 0.89(3H, t, J = 7.3Hz), 1.23-1.37(2H, m), 1.54-1.62(2H, m), 2.70(2H, t, J = 7.8Hz), 3.88(2H, broad), 6.86-6.90(1H, m), 7.22-7.30(3H, m), 7.44(1H, s), 7.56-7.59(2H, m).
I-36	(DMSO-d ₆) δ 0.82(3H, t, J = 7.3Hz), 1.19-1.29(2H, m), 1.44-1.52(2H, m), 2.66(2H, t, J = 7.8Hz), 5.36(2H, broad-s), 6.75-6.81(1H, m), 7.12-7.19(3H, m), 7.58(1H, s), 7.95(1H, d, J = 1.5Hz), 10.02(1H, s).
I-37	(DMSO-d ₆) δ 5.37(2H, s), 6.76-6.80(1H, m), 7.13-7.19(3H, m), 8.13(2H, s), 10.35(1H, s).
I-38	δ 0.79(3H, t, J = 7.3Hz), 1.23(3H, d, J = 6.8Hz), 1.53-1.63(2H, m), 2.90-2.99(1H, m), 3.87(2H, broad-s), 6.85-6.89(1H, m), 7.25-7.29(3H, m), 7.44(1H, s), 7.55-7.57(2H, m).

(continued)

	comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
5	I-39	δ 0.79(3H, t, J = 7.3Hz), 1.21(3H, d, J = 6.8Hz), 1.50-1.61(2H, m), 2.91-3.00(1H, m), 3.88(2H, broad-s), 6.86-6.91(1H, m), 7.26-7.31(3H, m), 7.51(2H, s), 7.94(1H, d, J = 2.0Hz).
	I-40	(DMSO-d ₆) δ 5.39(2H, broad-s), 6.77-6.80(1H, m), 7.13-7.20(3H, m), 8.02(2H, s), 10.35(1H, s).
10	I-41	(DMSO-d ₆) δ 5.38(2H, broad-s), 6.75-6.80(1H, m), 7.12-7.19(3H, m), 8.01(2H, s), 10.34(1H, s).
	I-42	(DMSO-d ₆) δ 3.34(3H, s), 5.40(2H, broad-s), 6.80(1H, d, J = 7.8Hz), 7.14-7.21(3H, m), 8.19(1H, s), 8.45(1H, s), 10.36(1H, s).
15	I-48	(DMSO-d ₆) δ 2.48(3H, s), 5.36(2H, broad-s), 6.77(1H, d, J = 7.3Hz), 7.11-7.18(3H, m), 7.36(1H, s), 7.70(1H, s), 10.09(1H, s).
	I-53	δ 0.91(3H, t, J = 7.3Hz), 1.57-1.66(2H, m), 2.69(2H, t, J = 7.8Hz), 2.88(3H, s), 3.97(1H, s), 6.80(1H, dd, J = 2.4, 7.8Hz), 7.19-7.32(3H, m), 7.49(1H, s), 7.60(1H, s), 7.94(1H, d, J = 2.0Hz).
20	I-55	δ 2.73(3H, s), 3.32(3H, s), 6.54(1H, d, J = 8.3Hz), 6.73(1H, s), 6.74(1H, d, J = 8.3Hz), 6.96(1H, t, J = 8.3Hz), 7.77(2H, s).
	I-56	δ 2.91(3H, s), 6.82-6.85(1H, m), 7.21-7.23(2H, m), 7.32(1H, t, J=7.8Hz), 7.64(1H, s), 7.93(2H, s)
25	I-83	δ 2.38(6H, s), 2.42(3H, s), 3.70(2H, broad), 6.72(1H, dd, J=2.4Hz, 8.1Hz), 6.89(1H, d, J=2.4Hz), 7.05(1H, s), 7.07(1H, d, J=8.1Hz), 7.36(2H, s)
	I-84	δ 2.37(6H, s), 3.90 (2H, broad-s), 6.96-7.01 (1H, m), 7.10 (1H, t, J=7.8Hz), 7.36 (2H, s), 7.43-7.47 (1H, m), 7.86 (1H, d, J=13.2Hz)
30	I-85	δ 2.33(6H, s), 6.99(1H, dt, J=1.5Hz, 7.8Hz), 7.10(1H, t, J=7.8Hz), 7.43(2H, s), 7.46(1H, d, J=7.8Hz), 7.84(1H, d, J=13.2Hz)
	I-86	6 2.33(6H, s), 3.93(2H, s), 7.05-7.14(1H, m). 7.17-7.21(1H, m), 7.31(1H, s), 7.35(2H, s), 7.37-7.40(1H, m)
35	I-87	δ 2.35(6H, s), 3.74(2H, broad-s), 6.77-6.83(1H, m), 7.01(1H, dd, J=8.8Hz, 11.7Hz), 7.35(2H, s), 7.42(1 H, dd, J=2.9Hz, 6.6Hz), 8.01(1 H, d, J=15.6Hz)
	I-88	δ 2.40(6H, s), 4.27(2H, broad-s), 6.88(1H, dd, J=1.5Hz, 7.8Hz), 7.03(1H, dd, J=1.5Hz, 7.8Hz). 7.16(1H, t, J=7.8Hz), 7.29(1H, s), 7.36(2H, s)
40	I-89	δ 2.33(6H, s), 4.27(2H, broad-s), 7.15(1H, d, J=8.1Hz), 7.35-7.38(5H, m)
	I-90	δ 2.39(6H, s), 3.85(2H, broad-s), 6.72(1H, dd, J=2.7Hz, 8.5Hz), 7.15(1H, d, J=2.7Hz), 7.22(1H, d, J=8.5Hz), 7.36(2H, s), 7.66(1H, s)
45	I-91	δ 2.43(6H, s), 4.34(2H, broad), 6.86(1H, dd, J=1.5Hz, 8.3Hz), 6.96(1H, dd, J=1.5Hz, 8.3Hz), 7.13(1H, s), 7.19(1H, t, J=8.3Hz), 7.36(2H, s)
	I-92	δ 2.44(6H, s), 3.86(2H, broad-s), 6.52(1H, dd, J=2.9Hz, 8.5Hz); 6.91(1H, d, J=2.9Hz), 7.12(1H, s), 7.35(2H, s), 7.62(1H, d, J=8.5Hz)
50	I-93	δ 2.27(6H, s), 4.09(2H, broad-s), 7.08(1H, s), 7.33(2H, s), 7.37(1H, s), 7.43(1H, s), 7.83(1H, s)
	I-94	(DMSO-d ₆) δ 2.29 (3H, s), 2.33 (6H, s), 5.43 (2H, s), 6.57-6.59 (1H, m), 6.85-6.90 (1H, m), 7.01 (1H, t, J = 7.8Hz), 7.49 (2H, s).
55	I-95	(DMSO-d ₆) δ 2.32(6H, s), 2.76(3H, d, J = 4.9Hz), 5.84(1H, broad), 6.77-6.81(2H, m), 7.10(1H, t, J = 7.8Hz), 7.43(2H, s), 9.90(1H, s).
	I-96	(DMSO-d ₆) δ 2.33(6H, s), 2.76(3H, d, J = 4.9Hz), 4.55(3H, s), 6.58-6.62(1H, m), 6.70-6.78(1H, m), 7.13(1H, t, J = 7.8Hz), 7.31(1H, s), 7.50(2H, s).
	I-98	(DMSO-d ₆) δ 2.32(6H, s), 2.77(3H, d, J = 4.9Hz), 5.82(1H, broad), 6.79(1H, t, J = 7.8Hz), 7.08-7.21(2H; m), 7.42(2H, s), 9.88(1H, s).
	I-124	(DMSO-d ₆) δ 2.26(6H, s), 7.46(2H, s), 7.88(1H, t, J = 7.8Hz), 8.43-8.48(2H, m), 8.73(1H, s), 8.81(1H, s), 10.27(1H, s).

(continued)

comp. No.	¹ H-NMR (DMSO-d ₆ , ppm)
I-125	δ 2.16(6H, s), 7.23(1H, s), 7.53(2H, s), 7.73(1H, t, J = 7.8Hz), 8.45(1H, d, J = 7.8Hz), 8.55(1H, d, J = 7.8Hz), 9.05(1 H, t, J = 2.0Hz).
1-204	(DMSO-d ₆) δ 2.35(6H, s), 4.31(2H, broad), 6.84-6.87(1H, m), 7.21-7.25(1H, m), 7.29-7.31(2H, m), 7.47-7.49(2H, m), 7.83(1H, s), 8.94(1H, s).
I-351	(DMSO-d ₆) δ 2.26(6H, s), 7.44(2H, s), 7.51-7.63(4H, m), 7.74(1H, d, J = 7.8Hz), 7.98-8.07(3H, m), 8.35(1H, s), 8.71(1H, s), 9.90(1H, s), 10.47(1H, s).
I-358	(DMSO-d ₆) δ 2.34(6H, s), 7.21(1H, dd, J = 8.2,11.2Hz), 7.32(1H, t, J = 7.8Hz), 7.49-7.56(4H, m), 7.78(1H, d, J = 7.8Hz), 8.04-8.08(2H, m), 8.23(1H, s), 8.71(1H, s), 9.08(1H, d, J = 11.2Hz).
I-419	(DMSO-d ₆) δ 2.34(6H, s), 7.49-7.63(6H, m), 7.76(1H, d, J = 7.8Hz), 7.99-8.08(3H, m), 8.37(1H, s), 9.99(1H, s), 10.48(1H, s).

[Table 12]

Comp. No.	LC-MS Molecular Ion Peak
I-384	573.80
I-385	573.73
I-401	579.67
I-406	516.73
I-414	654.73
I-418	499.87

[0152] The insecticide containing the compound represented by Formula (1) of the invention as an active ingredient is suitable for controlling various pests which give damage to paddy rices, fruit trees, vegetables, other crops and flowers and ornamental plants in agricultural, horticultural or stored grain products, or sanitary pests, or for controlling and it may include vermin such as eelworm, for example, those having strong insecticidal effect against Lepidoptera such as cotton caterpillar (*Diaphania indica*), oriental tea tortrix (*Homona magnanima*), cabbage webworm (*Hellula undalis*), summer fruit tortrix (*Adoxophyes orana fasciata*), smaller tea tortrix (*Adoxophyes sp.*), apple tortrix (*Archips fuscocupreanus*), peach fruit moth (*Carposina niponensis*), Manchurian fruit moth (*Grapholita inopinata*), oriental fruit moth (*Grapholita molesta*), soybean pod borer (*Leguminivora glyciniarella*), mulberry leafroller (*Olethreutes mori*), citrus leafminer (*Phyllocoptis citrella*), persimmon fruit moth (*Stathmopoda masinissa*), tea leafroller (*Caloptilia theivora*), (*Caloptilia zachrysa*), apple-leafminer (*Phyllonorycter ringoniella*), pear barkminer (*Spulerrina astaura*), small citrus dog (*Papilio xuthus*), common cabbage worm (*Pieris rapae crucivora*), tobacco budworm (*Heliothis armigera*), codling moth (*Cydia pomonella*), diamondback moth (*Plutella xylostella*), apple fruit moth (*Argyresthia conjugella*), peach fruit moth (*Carposina niponensis*), rice stem borer (*Chilo suppressalis*), rice leafroller (*Cnaphalocrocis medicinalis*), tobacco moth (*Ephestia elutella*), mulberry pyralid (*Glyphodes pyloalis*), paddy borer (*Scirpophaga incertulas*), rice skipper (*Parthena guttata*), rice armyworm (*Pseudaletia separata*), pink borer (*Sesamia inferens*), cabbage armyworm (*Mamestra brassicae*), common cutworm (*Spodoptera litura*), beet armyworm (*Spodoptera exigua*), black cutworm (*Agrotis ipsilon*), turnip moth (*Agrotis segetum*), beet semi-looper (*Autographa nigriesigna*), cabbage looper (*Trichoplusia ni*); Hemiptera such as aster leafhopper (*Macrosteles fascifrons*), green rice leafhopper (*Nephrotettix cincticeps*), brown rice planthopper (*Nilaparvata lugens*), small brown planthopper (*Laodelphax striatellus*), whitebacked rice planthopper (*Sogatella furcifera*), citrus psylla (*Diaphorina citri*), grape whitefly (*Aleurolobus taonabae*), silverleaf whitefly (*Bermisia argentifolii*), sweetpotato whitefly (*Bemisia tabaci*), greenhouse whitefly (*Trialeurodes vaporariorum*), turnip aphid (*Lipaphis erysimi*), cotton aphid (*Aphis gossypii*), apple aphid (*Aphis Citricola*), green peach aphid (*Myzus persicae*), Indian wax scale (*Ceroplastes ceriferus*), Comstock mealybug (*Pseudococcus Comstocki*), Japanese mealybug (*Planococcus kraunhae*), cottony citrus scale (*Pulvinaria aurantii*), camphor scale (*Pseudaonidia duplex*), san Jose scale (*Comstockaspis perniciosa*), arrowhead scale (*Unaspis yanonensis*), brownwinged green bug (*Plautia Stali*), brown marmorated stink bug (*Halyomorpha mista*); Coleoptera such as soybean beetle (*Anomala rufocuprea*), Japanese beetle (*Popillia japonica*), cigarette beetle (*Lasioderma serricorne*), powderpost beetle (*Lyctusbrunneus*), twenty-eight-spotted ladybird (*Epilachna vigintioctopunctata*), adzuki bean weevil (*Callosobruchus chinensis*), vegetable weevil (*Listroderes costirostris*),

maize weevil (*Sitophilus zeamais*), boll weevil (*Anthonomus grandis*), rice water weevil (*Lissorhoptrus oryzophilus*), cucurbit leaf beetle (*Aulacophora femoralis*), rice leaf beetle (*Oulema oryzae*), striped flea beetle (*Phyllotreta striolata*), pine shoot beetle (*Tomicus piniperda*), Colorado potato beetle (*Leptinotarsa decemlineata*), Mexican bean beetle (*Epilachna varivestis*), corn rootworm (*Diabrotica* sp.), yellowspotted longicorn beetle (*Psacothea hilaris*), whitespotted longicorn beetle (*Anoplophora malasiaca*); Diptera such as melon fly (*Dacus(Bactrocera) dorsalis*), rice leafminer (*Agromyza oryzae*), onion maggot (*Delia antiqua*), seedcorn maggot (*Delia platura*), soybean pod gall midge (*Asphondylia* sp.), house fly (*Musca domestica*), garden pea leafminer (*Chromatomyia horticola*), legume leafminer (*Liriomyza trifolii*), bryony leafminer (*Liriomyza bryoniae*), common house mosquito (*Culex pipiens*); Nematoda such as coffee root-lesion nematode (*Pratylenchus coffeae*), root-lesion nematode (*Pratylenchus* sp.), potato cyst nematode (*Globodera rostochiensis*), root-knot nematode (*Meloidogyne* sp.), citrus nematode (*Tylenchulus semipenetrans*), nematode (*Aphelenchus avenae*), chrysanthemum foliar nematode (*Aphelenchoides ritzemabosi*); Thysanoptera such as melon thrips (*Thrips palmi*), western flower thrips (*Frankliniella occidentalis*), yellow tea thrips (*Scirtothrips dorsalis*), honeysuckle thrips (*Thrips flavus*), onion thrips (*Thrips tabaci*); Orthoptera such as German cockroach (*Blattella germanica*), American cockroach (*Periplaneta americana*), rice grasshopper (*Oxya yezoensis*) and the like.

[0153] The insecticides containing the compound represented by Formula (1) of the invention as an active ingredient have notable insecticidal effect against the above-described pests that damage various lowland crops, upland crops, fruit trees, vegetables, other crops and horticultural products. Thus, the insecticidal effect of the invention can be obtained by treating the paddy field water, plant stems and leaves, or soil of the crops of lowland, upland, fruit trees, vegetables, other crops, and flowers and ornamental plants, during the seasons expected of the appearance of such pests, or before or at the point of pest appearance.

[0154] The insecticides of the invention are in general used in appropriate formulation forms according to the use, prepared by conventional methods for preparation of agricultural and horticultural chemicals. That is, the compounds represented by Formula (1) may be used in suitable formulations, such as a suspension, an emulsion, a liquid formulation, a water-dispersible powder, a granule, a dust formulation, tablets and the like, prepared by blending the compounds with suitable inert carriers, or with auxiliary agents if necessary, in appropriate proportions, followed by dissolution, separation, suspension, mixing, impregnation, adsorption or adhesion of the ingredients.

[0155] The inert carrier that can be used in the invention may be solids or liquids and include, in particular, soybean powders, grain powders, wood powders, bark powders, coarse powders, tobacco powders, walnut shell powders, brans, cellulose powders, residues from plant extraction, synthetic polymers such as pulverized synthetic resins, clays (for example, kaolin, bentonite, acidic white clay), talc (for examples, talc, pyrophyllite, etc.), silica (for examples, diatomite, sand, mica, white carbon (hydrated silica powders, hydrated silica powders called synthetic high dispersity silicic acids, there are also products containing calcium silicate as main component)), activated carbon, sulfur powder, pumice, calcined diatomaceous powders, pulverized bricks, fly ash, sand, inorganic mineral powders such as calcium carbonate and calcium phosphate, chemical fertilizers such as ammonium sulfate, ammonium phosphate, ammonium nitrate, urea and ammonium chloride, a compost and the like, which are used alone or as mixtures of two or more.

[0156] Materials that can be used as the inert carrier for liquids are selected from those having the function as solvent, as well as those capable of dispersing the active ingredient compound under an aid of an auxiliary agent even if the inert carrier has not the function as solvent, and they can be exemplified by, for example, the carriers listed below: water, alcohols (e.g., methanol, ethanol, isopropanol, butanol, ethylene glycol, etc.), ketones (e.g., acetone, methyl ethyl ketone, methyl isobutyl ketone, diisobutylketone, cyclohexanone, etc.), ethers (e.g., diethyl ether, dioxane, cellosolve, diisopropyl ether, tetrahydrofuran, etc.), aliphatic hydrocarbons (e.g., kerosene, mineral oil, etc.), aromatic hydrocarbons (e.g., benzene, toluene, xylene, solvent naphtha, alkyl naphthalene, etc.), halogenated hydrocarbons (e.g., dichloromethane, chloroform, tetrachlorocarbon, chlorobenzene, etc.), esters (e.g., ethyl acetate, butyl acetate, ethyl propionate, diisobutyl phthalate, dibutyl phthalate, dioctyl phthalate, etc.), amides (e.g., dimethyl formamide, diethyl formamide, dimethyl acetamide, etc.), and nitriles (e.g., acetonitrile, etc.), which are used alone or as mixtures of two or more.

[0157] The auxiliary agent may include the following representative auxiliary agents, which are used alone or in combination of two or more of them depending on the purpose; however, it is also possible not to use any auxiliary agent.

[0158] For the purpose of emulsification, dispersion, solubilization and/or wetting of the active ingredient compound, surfactants can be used, for example, polyoxyethylene alkyl ethers, polyoxyethylene alkyl aryl ethers, polyoxyethylene higher fatty acid esters, polyoxyethylene resin acid esters, polyoxyethylene sorbitan monolaurate, polyoxyethylene sorbitan monooleates, alkyl aryl sulfonate, naphthalene sulfonate, lignin sulfonate, higher alcohol sulfonate esters and the like.

[0159] For the purpose of dispersion stabilization, adhesion and/or binding of the active ingredient compound, the following auxiliary agent can be used, for example, casein, gelatin, starch, methyl cellulose, carboxymethyl cellulose, gum Arabic, polyvinyl alcohol, pine root oil, corn oil, bentonite, xanthan gum, lignin sulfonate salts and the like.

[0160] For the purpose of improving the flowability of solid products, the auxiliary agents can be used, for example, wax, stearic acid salts, phosphoric alkyl esters and the like. An auxiliary agent such as a naphthalene sulfonate condensation product, or a condensed phosphate salt can be used as a suspending agent in suspensions. An antifoaming

agent such as silicone oils can be also used as an auxiliary agent.

[0161] In addition, the compound represented by Formula (1) of the invention is stable against light, heat, oxidation and the like, but if desired, more stable compositions may be obtained by adding a stabilizer. The stabilizer may include, for example, antioxidants or UV absorbents, phenol derivatives such as BHT (2,6-di-t-butyl-4-methyl phenol), BHA (butyl hydroxy anisole), bisphenol derivatives, and aryl amines such as phenyl- α -naphthyl amine, phenyl- β -naphthyl amine, condensation product of phenetidine and acetone, or benzophenone compounds.

[0162] The effective amount of the compound represented by Formula (1) of the invention is typically 0.5 to 20% by weight in a dust formulation, 5 to 50% by weight in an emulsion, 10 to 90% by weight in a water-dispersible powder, 0.1 to 20% by weight in a granule, and 10 to 90% by weight in a flowable formulation. Meanwhile, the amount of carrier in the respective formulations is typically 60 to 99% by weight in a dust formulation, 40 to 95% by weight in an emulsion, 10 to 90% by weight in a water-dispersible powder, 80 to 99% by weight in a granule, and 10 to 90% by weight in a flowable formulation. The amount of such auxiliary agent is typically 0.1 to 20% by weight in a dust formulation, 1 to 20% by weight in an emulsion, 0.1 to 20% by weight in a water-dispersible powder, 0.1 to 20% by weight in a granule, and 0.1 to 20% by weight in a flowable formulation.

[0163] In order to control various pests, an amount effective for blight control can be applied, just as it is, or as an adequate dilution with water, or as a suspension, to the crops expected of the appearance of the corresponding pests or to the places where such occurrence is not preferable. The amount of use depends on various factors such as, for example, the purpose, the pest to be controlled, the state of plant growth, trend of pest appearance, climate, environmental conditions, formulation, method of use, place of use, timing of use and the like, but it is preferable to use the active ingredient in the concentration of 0.0001 to 5000 ppm, and preferably 0.01 to 1000 ppm. The dose that can be used in approximately 10 a is generally in the range of 1 to 300 g of the active ingredient.

[0164] The insecticide of the invention containing the compound represented by Formula (1) as an active ingredient may be used alone in control of various pests in agricultural, horticultural and stored grain products, which damage the rice plants, fruit trees, vegetables, other crops and flowers, or sanitary pests or eelworms, and further in order to obtain superior control effect with respect to various pests which occur at the same time, it may be used in combination with at least one other insecticide and/or fungicide.

[0165] Examples of other insecticides which can be combined with the compound represented by Formula (1) of the invention may include, for example, pyrethroid insecticides such as allethrin, tetramethrin, resmethrin, phenothrin, furamethrin, permethrin, cypermethrin, deltamethrin, cyhalothrin, cyfluthrin, fenpropathrin, tralomethrin, cycloprothrin, flucythrinate, fluvalinate, acrinathrin, tefluthrin, bifenthrin, empenthrin, beta-cyfluthrin, zeta-cypermethrin, fenvalerate and the like, and various isomers thereof; or Dalmatian pyrethrum extract; organophosphate insecticides such as DDVP, cyanophos, fenthion, fenitrothion, tetrachlorvinphos, dimethylvinphos, propaphos, methylparathion, temephos, phoxim, acephate, isoefenphos, salithion, DEP, EPN, ethion, mecarbam, pyridafenthion, diazinon, pririmiphos-methyl, etrimfos, isoxathion, quinalphos, chlorpyrifos-methyl, chlorpyrifos, phosalone, phosmet, methidathion, oxydeprofos, vamidothion, malathion, phenthionate, dimethoate, formothion, thiometon, disulfoton, phorate, terbufos, profenofos, prothiofos, sulprofos, pyraclofos, monocrotofos, naled, fosthiazate, cadusafos; carbamate insecticides such as NAC, MTMC, MIPC, BPMC, XMC, PHC, MPMC, ethiofencarb, bendiocarb, pirimicarb, carbosulfan, benfuracarb, methomyl, oxamyl, aldicarb; arylpropylether insecticides such as etofenprox, halfenprox; silylether compounds such as silafluofen; insecticidal natural products such as nicotine-sulfate, polynactins, abamectin, milbemectin, BT; insecticides such as cartap, thiocyclam, bensultap, diflubenzuron, chlorfluazuron, teflubenzuron, triflumuron, flufenoxuron, flucycloxuron, hexaflumuron, fluazuron, imidacloprid, nitenpyram, acetamiprid, dinotefuran, pymetrozine, fipronil, buprofezin, fenoxy carb, pyriproxyfen, methoprene, hydroprene, kinoprene, endosulfan, diafenthiuron, triazamate, tebufenozone, benzoepin; acaricides such as dicofol, chlorobenzilate, phenisobromolate, tetradifon, CPCBS, BPPS, chinomethionate, amitraz, benzomate, hexythiazox, fenbutatin oxide, cyhexatin, dienochlor, clofentezine, pyridaben, fenpyroximate, fenazaquin, tebufenpyrad; novaluron, noviflumuron, emamectin benzoate, clothianidin, thiacloprid, thiamethoxam, flupyrazofos, acequinocyl, bifenazate, chromafenozide, etoxazole, fluacrypyrim, flufenazine, halofenozone, indoxacarb, methoxyfenozone, spirodiclofen, tolfenpyrad, gamma-cyhalothrin, ethiprole, amidoflumet, bistrifluron, flonicamid, flubrocyclotriphosphate, flufenpyrad, pyridalyl, pyrimidifen, spinosad, or spiromesifen.

[0166] Examples of the fungicides which can be combined with the compound represented by Formula (1) of the invention may include, for example, azole fungicides such as triadimefon, hexaconazole, propiconazole, ipconazole, prochloraz, triflumizole; pyrimidine fungicides such as pyrifenoxy, fenarimol; anilinopyrimidine fungicides such as mepanipyrim, cyprodinil; acylalanine fungicides such as metalaxyl, oxadixyl, benalaxyl; benzimidazole fungicides such as thiophanate-methyl, benomyl; dithiocarbamate fungicides such as mancozeb, propineb, zineb, metiram; organochlorine fungicides such as tetrachloroisophthalonitrile; carboxamide fungicides such as carpropamid, ethaboxam; morpholine fungicides such as dimethomorph; strobilurin fungicides such as azoxystrobin, kresoxim-methyl, metominostrobin, orysastrobin, fluoxastrobin, trifloxystrobin, dimoxystrobin, pyraclostrobin, picoxystrobin; dicarboximide fungicides such as iprodione, procymidone; soil-applied fungicides such as flusulfamide, dazomet, methyl isothiocyanate, chloropicrin; copper fungicides such as basic copper chloride, basic copper sulfate, copper nonylphenol sulfonate, oxine-copper;

inorganic fungicides such as sulfur, zinc sulfate; organophosphate fungicides such as edifenphos, tolclofos-methyl, fosetyl; melanin biosynthesis inhibitors such as phthalide, tricyclazole, pyroquilon, dicloctymet; antibiotics such as kasugamycin, validamycin, polyoxins; fungicidal natural products such as rape seed oil; fungicides such as benthiavalicarb-isopropyl, iprovalicarb, cyflufenamid, fenchexamid, quinoxifen, spiroxamine, diflumetorim, metrafenone, picobenzamid, proquinazid, silthiofam, oxpoconazole, famoxadone, cyazofamid, fenamidone, furametpyr, zoxamide, boscalid, tiadinil, simeconazole, chlorothalonil, cymoxanil, captan, dithianon, fluazinam, folpet, dichlofluanid, (RS)-N-[2-(1,3-dimethylbutyl)thiophen-3-yl]-1-methyl-3-trifluoro methyl-1*H*-pyrazole-4-carboxamide (penthiopyrad: ISO proposed), oxycarboxin, mepronil, flutolanil, triforine, oxolinic acid, probenazole, acibenzolar-S-methyl, isoprothiolane, ferimzone, diclomezine, pencycuron, fluoroimide, chinomethionate, iminoctadine-triacetate, iminoctadine-albesilate and the like.

[0167] When the compound represented by Formula (1) of the invention is used in combination with at least one other insecticide and/or fungicide, a mixed composition of the compound represented by Formula (1) and other insecticide and/or fungicide may be used, or the compound represented by Formula (1) and other insecticide/fungicide may be mixed and used at the time of apply.

[0168] In addition to the above-mentioned insecticides and fungicides, the compound represented by Formula (1) can be mixed with plant protecting agents such as a herbicide, a fertilizer, a soil reformer, a plant growth controlling agent and a material, in order to form multi-purpose compositions of high efficacy, which are expected to provide an additive effect or a synergistic effect.

[0169] The following Examples illustrate representative Examples of the invention, but they are not intended to limit the invention.

Example 1-1

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-nitrobenzamide

[0170] To a solution prepared by adding 20.0 g of 2,6-dimethyl-4-heptafluoroisopropylaniline and 11.0 g of pyridine to 100 ml of tetrahydrofuran at room temperature with stirring, 13.0 g of 3-nitrobenzoyl chloride dissolved in 20 ml of tetrahydrofuran was gradually added dropwise thereto. After the reaction solution was stirred at room temperature for 10 hours, ethyl acetate and water were added thereto. Phase separation was carried out, and then the organic layer was separated and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained residue was washed with a solvent mixture of hexane-diisopropyl ether to give 26.0 g (yield 85%) of the title compound as a white solid.

¹H-NMR (CDCl₃, ppm) δ 2.33 (6H, s), 7.37 (2H, s), 7.68 (1H, s), 7.72 (1H, t, J = 8.1 Hz), 8.28 (1H, d, J = 8.1 Hz), 8.44 (1H, dd, J = 1.2, 8.1 Hz), 8.75 (1H, t, J = 1.2 Hz).

Example 1-2

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzamide (Compound No. 1-2)

[0171] To a solution prepared by adding 0.90 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-nitrobenzamide and 1.56 g of anhydrous tin(II) chloride to 25 ml of ethanol at room temperature with stirring, 2 ml of concentrated hydrochloric acid was added and the mixture was stirred at 60°C for one hour. After brought back to room temperature, the reaction solution was poured onto water, and neutralization was carried out using potassium carbonate. Ethyl acetate was added, the insolubles were filtered off, and then the organic layer was separated and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained residue was washed with hexane to give 0.44 g (yield 53%) of the title compound as a white solid.

[0172] ¹H-NMR (CDCl₃, ppm) δ 2.34 (6H, s), 3.87 (2H, broad), 6.86-6.89 (1H, m), 7.20-7.35 (6H, m)

Example 1-3

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(benzoylamoно)benzamide (Compound No. 10)

[0173] To a solution prepared by adding 0.25 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzamide and 0.06 g of pyridine to 5 ml of tetrahydrofuran at room temperature with stirring, 0.09 g of benzoyl chloride dissolved in 1 ml of tetrahydrofuran was added dropwise. After stirring at room temperature for 1 hour, ethyl acetate and 1N hydrochloric acid were added to the reaction solution, and the organic layer was separated. The organic layer was washed once with saturated aqueous sodium hydrogen carbonate solution and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained solid was washed with diisopropyl ether to give 0.29 g (yield 92%) of the title compound as a white solid.

¹H-NMR (DMSO-d₆, ppm) δ 2.37 (6H, s), 7.34 (2H, s), 7.46-7.57 (4H, m), 7.75 (1H, d, J = 7.8 Hz), 7.98-8.01 (2H, m), 8.12 (1H, d, J = 7.3 Hz), 8.34 (1H, s), 8.87 (1H, s), 9.66 (1H, s).

Example 2-1

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl-N-methyl 3-nitrobenzamide

[0174] To a suspension of 0.18 g of 60% sodium hydride in 15 ml of tetrahydrofuran, 2.0 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-nitrobenzamide dissolved in 5 ml of tetrahydrofuran was added dropwise at room temperature. After the mixture was stirred at room temperature for 30 minutes, 0.65 g of methyl iodide dissolved in 5 ml of tetrahydrofuran was added dropwise. Then, after raising temperature to 50°C and stirred for 4 hours, the reaction solution was returned to room temperature, and ethyl acetate and water were added. The organic layer was separated, washed once with water and dried over anhydrous magnesium sulfate, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 6:1) to give 1.73 g (yield 84%) of the title compound as a white solid.

¹H-NMR (CDCl₃, ppm) δ 2.31 (6H, s), 3.38 (3H, s), 7.27 (2H, s), 7.37 (1H, t, J = 7.8 Hz), 7.62-7.65 (1H, m), 8.05 (1H, t, J = 2.0 Hz), 8.11-8.14 (1H, m).

Example 2-2

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl-N-methyl 3-aminobenzamide (Compound No. I-5)

[0175] A solution prepared by adding 1.50 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl-N-methyl 3-nitrobenzamide and 0.15 g of 10% palladium-carbon to 20 ml of methanol, was stirred under a hydrogen atmosphere at atmospheric pressure for 2 hours. After the catalyst was filtered off, the solvent was distilled off under reduced pressure. Then, thus obtained solid was washed with hexane to give 1.24 g of the title compound (yield 88%) as a white solid.

¹H-NMR (CDCl₃, ppm) δ 2.27 (6H, s), 3.31 (3H, s), 3.80 (2H, broad), 6.40 - 6.43 (1H, m), 6.54-6.58 (1H, m), 6.71 (1H, t, J = 2.0 Hz), 6.76-6.86 (1H, m), 7.22 (2H, s).

Example 2-3

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl-N-methyl 3-(benzoylamino)benzamide (Compound No. 1478)

[0176] The title compound was prepared as a white solid according to the conditions described in Example 1-3.

¹H-NMR (DMSO-d₆, ppm) δ 2.29 (6H, s), 3.24 (3H, s), 6.84 (1H, d, J = 7.8 Hz), 7.12 (1H, t, J = 7.8 Hz), 7.33 (2H, s), 7.50-7.64 (4, m), 7.85-7.88 (2H, m), 7.98-8.03 (1H, m), 10.22 (1H, s).

Example 3

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-[(2-chloropyridin-3-yl)carbonylamino]benzamide (Compound No. 106)

[0177] To a solution prepared by adding 0.6 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzamide and 0.4 g of pyridine to 10 ml of tetrahydrofuran, 0.35 g of 2-chloronicotinoyl chloride hydrochloride was added and the mixture was stirred at room temperature for 4 hours. Ethyl acetate was added, the mixture was twice washed with saturated sodium hydrogen carbonate solution, and the solvent was distilled off under reduced pressure. Thus obtained solid was washed with a solvent mixture of hexane-diisopropyl ether and dried to give 0.64 g (yield 75%) of the title compound as a white solid.

¹H-NMR (DMSO-d₆, ppm) δ 2.30 (6H, s), 7.45 (2H, s), 7.54-7.60 (2H, m), 7.77-7.80 (1H, m), 7.95 (1H, d, J = 7.8 Hz), 8.10-8.12 (1H, m), 8.30 (1H, s), 8.54-8.59 (1H, m), 10.03 (1H, s), 10.88 (1H, s).

Example 4

[0178] Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-[(pyridin-3-yl)carbonylamino]benzamide (Compound No. 101)

[0179] A solution prepared by adding 99 mg of nicotinic acid and 153 mg of 1,1'-oxalyl diimidazole to 10 ml of acetonitrile was stirred at room temperature for 15 minutes and again at 40°C for 40 minutes. After returning back to room temperature,

300 mg of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzamide was added, and the mixture was stirred at 60°C for 5 hours. Then, the solvent was distilled off under reduced pressure, and to the residue obtained therefrom, ethyl acetate was added. The organic layer was twice washed with saturated sodium hydrogen carbonate solution, and the solvent was again distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent: hexane:ethyl acetate = 1:3) to give 70 mg (yield 18%) of the title compound as a white solid.
[0180] $^1\text{H-NMR}$ (DMSO-d₆, ppm) δ 2.30 (6H, s), 7.45 (2H, s), 7.54-7.61 (2H, m), 7.78 (1H, d, J = 8.3Hz), 8.06 (1H, d, J = 7.3 Hz), 8.32-8.35 (2H, m), 8.77-8.79 (1H, m), 9.15 (1H, d, J = 1.5 Hz), 10.00 (1H, s), 10.66 (1H, s).

Example 5-1

Preparation of N-methyl-2-bromo-4-heptafluoroisopropyl-6-methylaniline

[0181] To a solution prepared by adding 1.0 g of N-methyl-4-heptafluoroisopropyl-2-methylaniline to 5 ml of N,N-dimethyl formamide, 0.8 g of N-bromosuccinimide dissolved in 3 ml of N,N-dimethyl formamide was added dropwise. After the mixture was stirred at room temperature for 5 hours, ethyl acetate and water were added, and the organic layer was separated. The organic layer was twice washed with water and dried over anhydrous magnesium sulfate, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent: hexane:ethyl acetate = 9:1) to give 0.86 g (yield 68%) of the title compound as a red oil.
 $^1\text{H-NMR}$ (CDCl₃, ppm) δ 2.41 (3H, s), 2.93 (3H, s), 3.90 (1H, broad), 7.23 (1H, s), 7.54 (1H, s).

Example 5-2

Preparation of N-(2-bromo-4-heptafluoroisopropyl-6-methyl)phenyl-N-methyl 3-(benzoylamino)benzamide (Compound No. 1479)

[0182] The title compound was prepared as a white solid from N-methyl-2-bromo-4-heptafluoroisopropyl-6-methylaniline according to the conditions described in Examples 1-2 and 1-3.
 $^1\text{H-NMR}$ (DMSO-d₆, ppm) δ 2.41 (3H, s), 3.25 (3H, s), 6.95 (1H, dd, J = 1.5, 7.8 Hz), 7.16 (1H, t, J = 7.8 Hz), 7.50-7.64 (4H, m), 7.68 (1H, s), 7.86-7.88 (2H, m), 7.93 (1H, t, J = 1.5 Hz), 7.98-8.00 (1H, m), 10.24 (1H, s).

Example 6

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl-N-methyl 3-(N-methylbenzoylamino)benzamide (Compound No. 1487)

[0183] To a suspension of 40 mg of 60% sodium hydride in 10 ml of tetrahydrofuran, 0.3 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl-N-methyl 3-(benzoylamino)benzamide dissolved in 5 ml of tetrahydrofuran was added dropwise at room temperature. After the mixture was stirred at room temperature for 1 hour, 0.16 g of methyl iodide dissolved in 5 ml of tetrahydrofuran was added dropwise. Then, after returning to a temperature to 50°C and stirred for 4 hours, the reaction solution was returned to room temperature, and ethyl acetate and water were added to the reaction solution. The organic layer was separated, washed once with water and dried over anhydrous magnesium sulfate, and the solvent was distilled off under reduced pressure. Thus obtained residue was washed with diisopropyl ether to give 1.73 g (yield 84%) of the title compound as a white solid.

$^1\text{H-NMR}$ (DMSO-d₆, ppm) δ 2.20 (6H, s), 3.08 (3H, s), 3.20 (3H, s), 6.93-7.39 (10H, m), 7.45-7.51 (1H, m).

Example 7-1

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzthioamide

[0184] 0.35 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzamide and 0.19 g of Lawesson's reagent was added to 10 ml of toluene, and the mixture was heated with stirring at reflux temperature for 6 hours. The reaction solution was concentrated under reduced pressure, the solvent was distilled off, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 3:1) to give 0.07 g (yield 20%) of the title compound.
 $^1\text{H-NMR}$ (CDCl₃, ppm) δ 2.36 (6H, s), 3.87 (2H, broad-s), 6.84-6.87 (1H, m), 7.18-7.24 (2H, m), 7.33 (1H, s), 7.39 (2H, s), 8.56 (1H, broad-s).

Example 7-2.

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(benzoylamino)benzthioamide (Compound No. 2201)

- 5 [0185] The title compound was prepared from N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzthioamide according to the conditions described in Example 1-3.
¹H-NMR (CDCl₃, ppm) 82.38 (6H, s), 7.25-8.00 (11H, m), 8.34 (1H, s), 8.85 (1H, broad.).

Example 8

- 10 Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(phenylthiocarbonylamino)benzamide (Compound No. 2202) and N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(phenylthiocarbonylamino)benzthioamide (Compound No. 2203)

- 15 [0186] A solution of 0.37 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(benzoylamino)benzamide and 0.30 g of Lawesson's reagent in 10 ml of toluene was stirred at 70°C for 6 hours. The reaction solution was concentrated under reduced pressure, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 3:1) to give 0.18 g (yield 47%) of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(phenylthiocarbonylamino)benzamide and 0.05 g (yield 13%) of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(phenylthiocarbonylamino)benzthioamide.

[0187] Characterization of Compound No. 2202

¹H-NMR (CDCl₃, ppm) δ 2.36 (6H, s), 7.37 (2H, s), 7.47-7.61 (5H, m), 7.85-8.03 (4H, m), 8.57 (1H, s), 9.18 (1H, s).

[0188] Characterization of Compound No. 2203

¹H-NMR (CDCl₃, ppm) δ 2.38 (6H, s), 7.41 (2H, s), 7.45-7.55 (4H, m), 7.90-7.96 (4H, m), 8.57 (1H, broad), 8.74 (1H, broad), 9.18 (1H, broad).

Example 9-1

Preparation of N-benzyl-N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-nitrobenzamide

- 30 [0189] The title compound was prepared from N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-nitrobenzamide and benzyl bromide according to the process described in Example 6.

Example 9-2

- 35 Preparation of N-benzyl-N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(2-fluorobenzoylamino)benzamide

- [0190] The title compound was prepared from N-benzyl-N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-nitrobenzamide and 2-fluorobenzoyl chloride according to the processes described in Examples 1-2 and 1-3.

Example 9-3

- 40 Preparation of N-benzyl-N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-[N-ethyl-N-(2-fluorobenzoyl)amino]benzamide

- [0191] The title compound was prepared from N-benzyl-N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(2-fluorobenzoylamino)benzamide and ethyl iodide according to the process described in Example 6.

Example 9-4

- 45 Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-[N-ethyl-N-(2-fluorobenzoyl)amino]benzamide (Compound No. 1206)

- 50 [0192] A solution of 1.07 g of N-benzyl-N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-[N-ethyl-N-(2-fluorobenzoyl)amino]benzamide and 0.15 g of 10% palladium-carbon in 10 ml of methanol was stirred at 45°C for 6 hours under a hydrogen atmosphere. The catalyst was filtered off, and the solvent was distilled off under reduced pressure. Then, thus obtained residue was purified by silica gel (Fuji Silyria Chemical Ltd., NH silica) column chromatography (eluent : hexane:ethyl acetate = 1:1) to give 0.30 g (yield 32%) of the title compound as a white solid.

¹H-NMR (DMSO-d₆, ppm) δ 1.17 (3H, broad), 2.22 (6H, s), 3.99 (2H, broad), 7.01-7.08 (2H, m), 7.29-7.43 (6H, m), 7.72-7.77 (2H, m), 9.90 (1H, s).

Example 10-1

5

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 2-fluoro-3-nitrobenzamide

[0193] 2.35 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 2-chloro-3-nitrobenzamide prepared according to the process described in Example 1-1 and 0.87 g of potassium fluoride (spray-dried product) were added to 25 ml of N,N-dimethyl formamide dried by molecular sieves, and the mixture was heated with stirring at 150°C for 3 hours. After the reaction solution was brought back to room temperature, ethyl acetate and water were added thereto, and phase separation was carried out. The organic layer was separated, washed twice with water and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel chromatography (eluent : hexane: ethyl acetate = 4:1) to give 1.02 g (yield 45%) of the title compound as a solid.

[0194] ¹H-NMR (CDCl₃, ppm) δ 2.37 (6H, s), 7.39 (2H, s), 7.48-7.53 (1H, m), 7.87 (1H, d, J = 11.5 Hz), 8.23-8.28 (1H, m), 8.42-8.46 (1H, m).

Example 10-2

20

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(benzoylamino)-2-fluorobenzamide (Compound No. 601)

[0195] The title compound was prepared according to the processes described in Examples 1-2 and 1-3.

¹H-NMR (DMSO-d₆, ppm) δ 2.34 (6H, s), 7.37 (1H, t, J = 7.8 Hz), 7.45 (2H, s), 7.53-7.65 (4H, m), 7.77-7.82 (1H, m), 8.00-8.02 (2H, m), 10.10 (1H, s), 10.29 (1H, s).

Example 11-1

30 Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 4-fluoro-3-nitrobenzamide

[0196] 5.22 g of 4-fluoro-3-nitrobenzoic acid and 0.1 g of N, N-dimethyl formamide were introduced to 30 ml of toluene, and 3.7 g of thionyl chloride was added. The reaction mixture was stirred at 80°C for 1 hour and again for 2 hours under reflux conditions. After cooling to room temperature, the solvent was distilled off under reduced pressure, thus obtained residue was dissolved in 10 ml of tetrahydrofuran, and this solution was added dropwise to a mixed solution of 8.1 g of 2,6-dimethyl-4-heptafluoroisopropylaniline, 4.4 g of pyridine and 20 ml of tetrahydrofuran. After the mixture was stirred for 2 hours, ethyl acetate was introduced, and the organic layer was washed with water and saturated sodium hydrogen carbonate solution sequentially. The organic layer was dried over anhydrous magnesium sulfate, the solvent was distilled off under reduced pressure, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane: ethyl acetate = 4:1) to give 5.9 g (yield 46%) of the title compound as a white solid.

¹H-NMR (CDCl₃, ppm) δ 2.11 (6H, s), 7.26-7.31 (3H, m), 8.12-8.15 (1H, m), 8.60-8.62 (1H, m), 8.70 (1H, s).

Example 11-2

45 Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-amino-4-fluorobenzamide

[0197] The title compound was prepared according to the conditions described in Example 1-2. The compound was obtained as a white solid.

¹H-NMR (DMSO-d₆, ppm) δ 2.26 (6H, s), 5.42 (2H, broad-s), 7.10-7.19 (2H, m), 7.37 (1H, dd, J = 2.0, 8.8 Hz), 7.42 (2H, s), 9.78 (1H, s).

Example 11-3

55 Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 4-fluoro-3-(methylamino)benzamide

[0198] 18 ml of 98% sulfuric acid was cooled to a temperature of 0°C to 5°C and stirred, and 2.50 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-amino-4-fluorobenzamide was added thereto. After the reaction mixture was stirred for 15 minutes, 18 ml of an aqueous solution of 37% formaldehyde was added dropwise, and the mixture was stirred at

0°C for 1 hour and for further 3 hours at room temperature. To the reaction solution cooled again to 0°C, 28% ammonia solution in water was added to neutralize the solution, ethyl acetate was added, and the organic layer was separated. The organic layer was dried over anhydrous magnesium sulfate, the solvent was distilled off under reduced pressure, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 4:1) to give 1.74 g (yield 67%) of the title compound in an amorphous form.

⁵ ¹H-NMR (CDCl₃, ppm) δ 2.32 (6H, s), 2.94 (3H, d, J = 4.9 Hz), 4.14 (1H, broad), 7.03 (1H, dd, J = 8.3,11.2 Hz), 7.10-7.13 (1H, m), 7.24 (1H, s), 7.34 (2H, s), 7.42 (1H, s).

[0199] The following compounds were prepared according to the process described in Example 11-3:

N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 2-fluoro-3-(methylamino)benzamide

¹⁰ ¹H-NMR (DMSO-d₆) δ 2.32 (6H, s), 2.76 (3H, d, J = 4.9 Hz), 5.84 (1H, broad), 6.77-6.81 (2H, m), 7.10 (1H, t, J = 7.8 Hz), 7.43 (2H, s), 9.90 (1H, s).

N-[2,6-dimethyl-4-(nonafluoro-2-butyl)]phenyl 2-fluoro-3-(methylamino)benzamide

¹⁵ ¹H-NMR (DMSO-d₆) δ 2.32 (6H, s), 2.77 (3H, d, J = 4.9 Hz), 5.82 (1H, broad), 6.79 (1H, t, J = 7.8 Hz), 7.08-7.21 (2H, m), 7.42 (2H, s), 9.88 (1H, s).

N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl-N-methyl 2-fluoro-3-(methylamino)benzamide

²⁰ ¹H-NMR (DMSO-d₆) δ 2.33 (6H, s), 2.76 (3H, d, J = 4.9 Hz), 4.55 (3H, s), 6.58-6.62 (1H, m), 6.70-6.78 (1H, m), 7.13 (1H, t, J = 7.8 Hz), 7.31 (1H, s), 7.50 (2H, s).

Example 11-4

²⁵ Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 4-fluoro-3-[N-methyl-N-(4-nitrobenzoyl)amino]benzamide (Compound No. 1464)

[0200] The title compound was obtained as a white solid using 4-nitrobenzoyl chloride according to the conditions described in Example 1-3.

³⁰ ¹H-NMR (DMSO-d₆, ppm) δ 2.23 (6H, s), 3.42 (3H, s), 7.41 (1H, broad), 7.45 (2H, s), 7.60 (2H, broad), 7.90 (1H, broad), 8.08-8.13 (3H, broad), 9.93 (1H, s).

Example 12-1

³⁵ Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 6-chloropyridine-2-carboxamide

[0201] A mixture of 2.2 g of 6-chloropyridine-2-carboxylic acid and 0.1 g of N,N-dimethyl formamide was introduced to 10 ml of toluene, and then 2.0 g of thionyl chloride was added thereto. After stirred at 80°C for 1 hour, the reaction mixture was stirred for another 2 hours under reflux conditions. The mixture was cooled to room temperature, the solvent was distilled off under reduced pressure, and thus obtained residue was added dropwise to a mixed solution of 3.67 g of 2,6-dimethyl-4-heptafluoroisopropylaniline, 1.22 g of pyridine and 20 ml of tetrahydrofuran. After the mixture was stirred at room temperature for 2 hours, ethyl acetate was added thereto, and the organic layer was washed with water and saturated aqueous sodium hydrogen carbonate solution sequentially. The organic layer was dried over anhydrous magnesium sulfate, the solvent was distilled off under reduced pressure, and thus obtained residue was washed with cooled hexane at 5°C to give 4.42 g (yield 77%) of the title compound as a white solid.

⁴⁰ ¹H-NMR (CDCl₃, ppm) δ 2.36 (6H, s), 7.36 (2H, s), 7.56 (1H, dd, J = 1.0,8.1 Hz), 7.88 (1H, dd, J = 7.6,8.1 Hz), 8.23 (1H, dd, J = 1.0,7.6 Hz), 9.27 (1H, broad-s).

Example 12-2

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 6-aminopyridin-2-carboxamide

⁴⁵ A mixture of 3.08 g of

[0202] N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 6-chloropyridin-2-carboxamide, 30 ml of 28% ammonia solution in water, 0.20 g of copper sulfate and 70 ml of methanol was introduced into a 200 ml autoclave and was heated with stirring at 150°C for 2 hours. After the mixture was cooled to room temperature, ammonia was distilled off at 60°C and atmospheric pressure, and methanol was distilled off under reduced pressure. Ethyl acetate and water were added to the reaction solution, phase separation was carried out, and the organic layer was separated and dried over anhydrous sodium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 3:2 to 2:3) to give 2.90 g (yield 98%) of the title compound as an oil.

¹H-NMR (CDCl₃, ppm) δ 2.35 (6H, s), 4.57 (2H, broad-s), 6.69-6.74 (1H, m), 7.34 (2H, s), 7.62-7.66 (2H, m), 9.39 (1H, broad-s).

Example 12-3

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 6-(benzoylamino)pyridin-2-carboxamide (Compound No. 2001)

[0203] A mixture of 0.16 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 6-aminopyridin-2-carboxamide and 62 mg of pyridine was introduced to 3 ml of tetrahydrofuran, 63 mg of benzoyl chloride was added, and the mixture was stirred at room temperature for 3 hours. Ethyl acetate was introduced, and the organic layer was washed with water and then with saturated aqueous sodium hydrogen carbonate solution. The organic layer was dried over anhydrous magnesium sulfate, and the solvent was distilled off under reduced pressure, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 6:4) to give 0.13 g (yield 65%) of the title compound as a white solid.

[0204] ¹H-NMR (CDCl₃, ppm) δ 2.36 (6H, s), 7.36 (2H, s), 7.53-7.57 (2H, m), 7.61-7.65 (1H, m), 7.95-8.03 (3H, m), 8.08 (1H, dd, J = 1.0, 7.3 Hz), 8.52 (1H, broad-s), 8.62 (1H, dd, J = 1.0, 8.3 Hz), 9.19 (1H, broad-s).

Example 12-4

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 6-(benzoylamino)-1-oxypyridin-2-carboxamide (Compound No. 2164)

[0205] A mixture of 65 mg of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 6-(benzoylamino)pyridin-2-carboxamide and 0.11 g of m-chloroperbenzoic acid was introduced to 5 ml of benzene, and the mixture was stirred at 80°C for 4 hours. The mixture was cooled to room temperature, and the organic layer was washed with water and saturated aqueous sodium hydrogen carbonate solution sequentially and dried over anhydrous magnesium sulfate. The solvent was distilled off under reduced pressure, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 4:1) to give 52 mg (yield 52%) of the title compound as a white solid.

¹H-NMR (CDCl₃, ppm) δ 2.34 (6H, s), 7.47 (2H, s), 7.62-7.65 (2H, m), 7.70-7.81 (2H, m), 8.00-8.04 (3H, m), 8.64 (1H, dd, J = 1.5, 8.3 Hz), 10.90 (1H, broad-s), 12.30 (1H, broad-s).

Example 13-1

Preparation of 2,6-dibromo-4-heptafluoroisopropylaniline

[0206] To a solution prepared by adding 2.0 g of 4-heptafluoroisopropylaniline in 5 ml of N,N-dimethyl formamide, 2.73 g of N-bromosuccinimide dissolved in 10 ml of N,N-dimethyl formamide was introduced at 5°C. After the reaction solution was returned to room temperature and stirred for 2 hours, ethyl acetate and water were added thereto, and the organic layer was separated and washed once with water. The solvent was distilled off under reduced pressure, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 20:1) to give 2.20 g (yield 69%) of the title compound as an orange oil.

¹H-NMR (CDCl₃, ppm) δ 4.89 (2H, broad-s), 7.59 (2H, s).

Example 13-2

Preparation of N-(2,6-dibromo-4-heptafluoroisopropyl)phenyl 3-nitrobenzamide

[0207] A mixed solution of 2.20 g of 2,6-dibromo-4-heptafluoroisopropylaniline, 1.46 g of 3-nitrobenzoyl chloride and 10 ml of pyridine was stirred at 70°C for 20 hours. After the solution was returned to room temperature, ethyl acetate and 1N hydrochloric acid were added, and the organic layer was separated and washed with a saturated aqueous sodium hydrogen carbonate solution. The solvent was distilled off under reduced pressure, and thus obtained residue was dissolved in a solvent mixture of 8 ml of tetrahydrofuran and 2 ml of methanol. Then, the solution was cooled to 5°C, 0.30 g of sodium hydroxide was added, the solution was stirred for 2 hours, and ethyl acetate and water were added to the reaction solution. The organic layer was separated, washed with saturated brine and dried over anhydrous magnesium sulfate. The solvent was distilled off under reduced pressure, and thus obtained residue was washed with hexane to give 2.19 g (yield 73%) of the title compound as a pale brown solid.

[0208] ¹H-NMR (DMSO-d₆, ppm) δ 7.92 (1H, t, J = 7.8 Hz), 8.08 (2H, s), 8.45 (1H, d, J = 7.8 Hz), 8.53 (1H, dd, J =

1.5, 7.8 Hz), 8.85 (1H, d, J = 1.5 Hz), 11.08 (1H, s).

Example 13-3

5 Preparation of N-(2,6-dibromo-4-heptafluoroisopropyl)phenyl 3-aminobenzamide

[0209] The title product was obtained as a white solid according to the conditions described in Example 1-2.
¹H-NMR (DMSO-d₆, ppm) δ 5.39 (2H, broad-s), 6.77-6.80 (1H, m), 7.13-7.20 (3H, m), 8.02 (2H, s), 10.35 (1H, s).

10 Example 13-4

Preparation of N-(2,6-dibromo-4-heptafluoroisopropyl)phenyl 3-(2-fluorobenzoyl)aminobenzamide (Compound No. 8)

[0210] The title compound was obtained as a white solid using 2-fluorobenzoyl chloride according to the conditions described in Example 1-3.

¹H-NMR (DMSO-d₆, ppm) δ 7.33-7.40 (2H, m), 7.55-7.63 (2H, m), 7.68-7.72 (1H, m), 7.78 (1H, d, J = 7.8 Hz), 7.99 (1H, d, J = 7.8 Hz), 8.05 (2H, s), 8.34 (1H, s), 10.65 (1H, s), 10.69 (1H, s).

Example 14-1

20 Preparation of 4-(heptafluoro-n-propylthio)aniline

[0211] To 20 ml of an acetonitrile solution of 1.25 g of 4-aminothiophenol and 1.11 g of triethylamine, 5.91 g of 1-iodoheptafluoro-n-propane was added, and the mixture was stirred at room temperature for 3 hours. The mixture was diluted with ether, washed with an aqueous solution of 1N sodium hydroxide and purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 4:1) to give 1.85 g (yield 63%) of the title compound.

¹H-NMR (CDCl₃, ppm) δ 3.95 (2H, s), 6.66 (2H, d, J = 8.8 Hz), 7.40 (2H, d, J = 8.8 Hz).

Example 14-2

30 Preparation of 2,6-dibromo-4-(heptafluoro-n-propylthio)aniline

[0212] To a solution prepared by adding 0.77 g of 4-(heptafluoro-n-propylthio)aniline in 15 ml of N,N-dimethyl formamide, 0.98 g of N-bromosuccinimide was introduced. After the mixture was stirred at 60°C for 2 hours, ether and water were added, and the organic layer was separated. The organic layer was twice washed with water and dried over anhydrous magnesium sulfate, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane: ethyl acetate = 9:1) to give 1.19 g (yield 100%) of the title compound as a red oil.

¹H-NMR (CDCl₃, ppm) δ 4.98 (2H, broad-s), 7.66 (2H, s).

40 Example 14-3

Preparation of N-(2,6-dibromo-4-heptafluoro-n-propylthio)phenyl 3-nitrobenzamide

[0213] To a solution prepared by adding 1.08 g of 2,6-dibromo-4-(heptafluoro-n-propylthio)aniline and 0.4 g of pyridine to 20 ml of tetrahydrofuran with stirring at room temperature, 0.55 g of 3-nitrobenzoyl chloride dissolved in 20 ml of tetrahydrofuran was gradually introduced dropwise. After the mixture was stirred at room temperature for 10 hours, ethyl acetate and water were added to the reaction solution. The organic layer was separated and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 4:1) to give 0.86 g (yield 48%) of the title compound as a white solid.

¹H-NMR (CDCl₃, ppm) δ 7.73 (1H, s, J = 7.8 Hz), 7.77 (1H, t, J = 7.8 Hz), 7.96 (2H, s), 8.31 (1H, s), 8.47-8.50 (1H, m), 8.79 (1H, t, J = 2.0 Hz).

Example 14-4

Preparation of N-{2,6-dibromo-4-(heptafluoro-n-propylthio)}phenyl 3-aminobenzamide (Compound No. 1-28)

5 [0214] To a solution prepared by adding 0.97 g of N-{2,6-dibromo-4-(heptafluoro-n-propylthio)}phenyl 3-nitrobenzamide and 0.95 g of anhydrous tin(II) chloride to 20 ml of ethanol with stirring at room temperature, 2 ml of concentrated hydrochloric acid was added, and the mixture was heated with stirring at 60°C for 1 hour. After the mixture was returned to room temperature, the reaction solution was poured onto water, and neutralization was carried out using potassium carbonate. Ethyl acetate was added, the insolubles were filtered off, and the organic layer was separated and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained residue was washed with hexane to give 0.75 g (yield 81%) of the title compound as a white solid.

¹H-NMR (CDCl₃, ppm) δ 3.89 (2H, broad-s), 6.90 (1H, dt, J = 2.5, 6.4 Hz), 7.28-7.30 (3H, m), 7.60 (1H, s), 7.93 (2H, s).

15 Example 14-5

Preparation of N-(2,6-dibromo-4-heptafluoro-n-propylthio)phenyl 3-(benzoylamino)benzamide (Compound No. 263)

20 [0215] To a solution prepared by adding 0.10 g of N-(2,6-dibromo-4-heptafluoro-n-propylthio)phenyl 3-aminobenzamide and 0.02 g of pyridine to 5 ml of tetrahydrofuran with stirring at room temperature, 0.03 g of benzoyl chloride dissolved in 1 ml of tetrahydrofuran was introduced. After the mixture was stirred at room temperature for 1 hour, ethyl acetate and 1N hydrochloric acid were added, and the organic layer was separated. The organic layer was washed once with saturated aqueous sodium hydrogen carbonate solution and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 3:1) to give 0.10 g (yield 67%) of the title compound as a white solid.

¹H-NMR (DMSO-d₆, ppm) δ 7.47-7.57 (4H, m), 7.78 (1H, d, J = 7.8 Hz), 7.93 (2H, s), 7.99-8.01 (2H, m), 8.18 (1H, d, J = 7.8 Hz), 8.33 (1H, t, J = 2.0 Hz), 9.27 (1H, s), 9.65 (1H, s).

30 Example 14-6

Preparation of N-(2,6-dibromo-4-heptafluoro-n-propylthio)phenyl 3-[(2-chloropyridin-3-yl)carbonylamino]benzamide (Compound No. 309)

35 [0216] To a solution prepared by adding 0.15 g of N-(2,6-dibromo-4-heptafluoro-n-propylthio)phenyl 3-aminobenzamide and 0.03 g of pyridine to 5 ml of tetrahydrofuran, 0.05 g of 2-chloronicotinoyl chloride hydrochloride was added, and the mixture was stirred at room temperature for 4 hours. Ethyl acetate was added, the mixture was twice washed with saturated sodium hydrogen carbonate solution, and the solvent was distilled off under reduced pressure. Thus obtained solid was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 3:1) to give 0.17 g (yield 92%) of the title compound in an amorphous form.

¹H-NMR (CDCl₃, ppm) δ 7.44 (1H, dd, J = 4.8, 7.8 Hz), 7.56 (1H, t, J = 7.8 Hz), 7.80 (1H, d, J = 7.8 Hz), 7.86 (1H, s), 7.92 (1H, d, J = 7.8 Hz), 7.95 (2H, s), 8.23 (1H, dd, J = 2.0, 7.8 Hz), 8.30 (1H, s), 8.41 (1H, s), 8.55 (1H, dd, J = 2.0, 4.8 Hz).

45 Example 14-7

Preparation of N-(2,6-dibromo-4-heptafluoro-n-propylsulfinyl)phenyl 3-nitrobenzamide

50 [0217] To a solution prepared by adding 0.5 g of N-(2,6-dibromo-4-heptafluoro-n-propylthio)phenyl 3-nitrobenzamide to 15 ml of chloroform and stirring at room temperature, 0.5 g of m-chloroperbenzoic acid was introduced. The mixture was stirred at room temperature for 2 days, and after addition of an aqueous solution of sodium sulfite, the mixture was stirred again. Phase separation was carried out, an obtained organic layer was washed with an aqueous solution of sodium hydroxide and saturated brine, and the solvent was distilled off under reduced pressure. Thus obtained solid was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 4:1) to give 0.36 g (yield 70%) of the title compound as a white solid.

¹H-NMR (CDCl₃, ppm) δ 7.76-7.82 (2H, m), 8.06 (1H, s), 8.29 (1H, s), 8.33-8.35 (1H, m), 8.49-8.53 (1H, m), 8.81 (1H, s).

Example 14-8

Preparation of N-(2,6-dibromo-4-heptafluoro-n-propylsulfinyl)phenyl 3-aminobenzamide (Compound No. I-57)

[0218] The title compound was obtained using N-(2,6-dibromo-4-heptafluoro-n-propylsulfinyl)phenyl 3-nitrobenzamide according to the conditions described in Example 1-2.

$^1\text{H-NMR}$ (CDCl_3 , ppm) 86.90-6.94 (1H, m), 7.28-7.33 (3H, m), 7.73 (1H, s), 8.02 (1H, s), 8.25 (1H, s).

Example 14-9

[0219] The title compound was obtained using N-(2,6-dibromo-4-heptafluoro-n-propylsulfinyl)phenyl 3-aminobenzamide according to the conditions described in Example 1-3.

$^1\text{H-NMR}$ (CDCl_3 , ppm) 87.45-7.61 (4H, m), 7.77-7.79 (1H, m), 7.87-7.91 (3H, m), 8.01 (1H, s), 8.07-8.10 (1H, m), 8.15 (1H, s), 8.25 (1H, s), 8.38 (1H, s).

Example 14-10

[0220] Preparation of 2,6-dimethyl-4-(heptafluoro-n-propylthio)aniline

A mixture of 3.0 g (1.3 mmol) of 2,6-dibromo-4-heptafluoro-n-propylthioaniline, 3.0 g (21.9 mmol) of potassium carbonate, 0.75 g (0.65 mmol) of tetrakis(triphenylphosphine)palladium and 0.17 g (1.3 mmol) of trimethylboroxine was added to 20 ml of DMF, and this was stirred at 135°C for 6 hours. The reaction solution was returned to room temperature, the insolubles were removed by celite filtration, and filtrate was concentrated under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 12:1 to 4:1) to give 1.17 g (yield 55%) of the title compound as an oil.

[0221] $^1\text{H-NMR}$ (CDCl_3 , ppm) δ 2.17 (6H, s), 3.86 (2H, broad-s), 7.22 (2H, S).

Example 15

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(methylamino)benzamide

[0222] A mixture of 20.0 g of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-aminobenzamide, 4.40 g of an aqueous solution of 37% formaldehyde, 2.0 g of 10% palladium-carbon and 200 ml of ethyl acetate was stirred under a hydrogen atmosphere at room temperature and ambient pressure. The insolubles in the reaction solution were separated by filtration, and the filtered residue was washed with ethyl acetate. The filtrate was collected, the solvent was distilled off under reduced pressure, and thus obtained residue was washed with diisopropyl ether to give 13.5 g (yield 65%) of the title compound as a white solid.

$^1\text{H-NMR}$ (CDCl_3 , ppm) δ 2.35 (6H, s), 2.91 (3H, s), 6.82 (1H, d, J = 7.3 Hz), 7.18-7.52 (7H, m).

Example 16-1

Preparation of 3-(benzoylamino)benzoic acid

[0223] To a solution of 1.37 g of 3-aminobenzoic acid and 0.4 g of sodium hydroxide in 50 ml of water, 1.41 g of benzoyl chloride and a solution containing 0.4 g of sodium hydroxide in 5 ml of water were simultaneously added dropwise, in an ice bath, and the mixture was stirred at room temperature for 6 hours. The reaction solution was adjusted to pH 1 by addition of 1N hydrochloric acid, and thus obtained solid was collected by filtration to give 1.92 g (yield 80%) of the title compound as a white solid.

$^1\text{H-NMR}$ (CDCl_3 , ppm) δ 7.40-7.56 (5H, m), 7.78 (1H, d, J = 7.8 Hz), 8.00 (2H, d, J = 8.3 Hz), 8.15 (1H, d, J = 7.8 Hz), 8.35 (1H, t, J = 2.0 Hz), 9.89 (1H, s).

Example 16-2

Preparation of 3-(benzoylamino)benzoyl chloride

[0224] To a suspension of 1.5 g of 3-(benzoylamino)benzoic acid in 10 ml of toluene, 2 ml of thionyl chloride was

added, and the mixture was stirred under reflux conditions for 2 hours. After the mixture was returned to room temperature, the solvent was distilled off under reduced pressure to give 1.53 g (yield 95%) of the title compound as a white solid.

[0225] $^1\text{H-NMR}$ (CDCl_3 , ppm) δ 7.51-7.62 (4H, m), 7.90 (2H, d, $J = 7.3$ Hz), 7.93 (1H, s), 7.97 (1H, s), 8.15 (1H, dt, $J = 1.0, 5.9$ Hz), 8.28 (1H, t, $J = 2.0$ Hz).

5 [0226] Using readily available benzoic acids, the following compounds can be prepared according to the processes described in Examples 16-1 and 16-2:

- 10 3-[(2-fluorobenzoyl)amino]benzoyl chloride
- 3-[(3-fluorobenzoyl)amino]benzoyl chloride
- 3-[(4-fluorobenzoyl)amino]benzoyl chloride
- 3-[(2-chlorobenzoyl)amino]benzoyl chloride
- 3-[(3-chlorobenzoyl)amino]benzoyl chloride
- 3-[(4-chlorobenzoyl)amino]benzoyl chloride
- 3-[(3-cyanobenzoyl)amino]benzoyl chloride
- 15 3-[(4-cyanobenzoyl)amino]benzoyl chloride
- 3-[(2-methyl benzoyl)amino]benzoyl chloride
- 3-[(3-methyl benzoyl)amino]benzoyl chloride
- 3-[(4-methyl benzoyl)amino]benzoyl chloride
- 3-[(2-nitro benzoyl)amino]benzoyl chloride
- 20 3-[(3-nitrobenzoyl)amino]benzoyl chloride
- 3-[(4-nitrobenzoyl)amino]benzoyl chloride
- 3-[(2-trifluoromethyl benzoyl)amino]benzoyl chloride
- 3-[(3-trifluoromethyl benzoyl)amino]benzoyl chloride
- 3-[(4-trifluoromethyl benzoyl)amino]benzoyl chloride
- 25 3-[(2-trifluoromethoxy benzoyl)amino]benzoyl chloride
- 3-[(3-trifluoromethoxy benzoyl)amino]benzoyl chloride
- 3-[(4-trifluoromethoxy benzoyl)amino]benzoyl chloride
- 3-[(2,3-difluorobenzoyl)amino]benzoyl chloride
- 3-[(2,4-difluorobenzoyl)amino]benzoyl chloride
- 30 3-[(2,5-difluorobenzoyl)amino]benzoyl chloride
- 3-[(2,6-difluorobenzoyl)amino]benzoyl chloride
- 3-[(3,4-difluorobenzoyl)amino]benzoyl chloride
- 3-[(pyridin-3-yl)carbonylamino]benzoyl chloride
- 35 3-[(2-fluoropyridin-3-yl)carbonylamino]benzoyl chloride
- 3-[(2-chloropyridin-3-yl)carbonylamino]benzoyl chloride
- 3-[(2, 4-dichlorobenzoyl)amino]benzoyl chloride
- 3-[(2, 6-dichlorobenzoyl)amino]benzoyl chloride
- 3-[(3,4-dichlorobenzoyl)amino]benzoyl chloride
- 40 3-[(2-chloro-4-fluorobenzoyl)amino]benzoyl chloride
- 3-[(4-chloro-2-fluorobenzoyl)amino]benzoyl chloride
- 3-[(2-chloro-6-fluorobenzoyl)amino]benzoyl chloride
- 3-[(2,3,6-trifluorobenzoyl)amino]benzoyl chloride

Example 16-3

45 Preparation of N-(2,6-dimethyl-4-heptafluoro-n-propylthio)phenyl 3-(benzoylamino)benzamide (Compound No. 260)

[0227] To a solution prepared by adding 0.1 g of 2,6-dimethyl-4-(heptafluoro-n-propylthio)aniline and 0.03 g of pyridine to 5 ml of tetrahydrofuran and stirring at room temperature, 0.09 g of 3-(benzoylamino)benzoyl chloride dissolved in 1 ml of tetrahydrofuran was introduced. After the mixture was stirred at room temperature for 1 hour, ethyl acetate and 1N hydrochloric acid were added, and the organic layer was separated. The organic layer was washed once with a saturated aqueous sodium hydrogen carbonate solution and dried over anhydrous magnesium sulfate. This solution was filtered, the filtrate was collected, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 3:1) to give 0.10 g (yield 53%) of the title compound as a white solid.

$^1\text{H-NMR}$ ($\text{DMSO}-d_6$, ppm) 82.31 (6H, s), 7.41 (2H, s), 7.50-7.67 (5H, m), 7.71 (1H, d, $J=7.8$ Hz), 7.87-7.90 (3H, m), 8.07 (1H, s), 8.31 (1H, s).

Example 17-1

Preparation of 2,6-dimethyl-4-[1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]aniline

[0228] At room temperature, 24.4 g of 2,6-dimethylaniline and 50.0 g of hexafluoroacetone hydrate were mixed, and 0.5 g of p-toluenesulfonic acid monohydrate was added. The reaction solution was stirred and heated to 100°C. After the loss of the starting material was confirmed through TLC, ethyl acetate and an aqueous solution of 1N sodium hydroxide were added to the reaction solution, and phase separation was carried out. The organic layer was dried over anhydrous magnesium sulfate and filtered. The filtrate was concentrated under reduced pressure, and the residue was washed by addition of hexane. The suspension was filtered, and thus obtained filtered residue was dried under reduced pressure at room temperature to give 24.3 g (yield 69%) of the title compound as a powder form.
 $^1\text{H-NMR}$ (CDCl_3 , ppm) δ 2.20 (6H, s), 3.26 (1H, broad-s), 3.76 (2H, broad-s), 7.25 (2H, s).

Example 17-2

Preparation of N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-nitrobenzamide (Compound No. I-124)

[0229] At room temperature, 5.0 g of 2,6-dimethyl-4-[1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]aniline, 3.9 g of 3-nitrobenzoyl chloride and 2.1 g of pyridine were introduced to 50 ml of tetrahydrofuran in a reactor, and the mixture was stirred at room temperature. After the loss of the starting material was confirmed through TLC, a saturated sodium hydrogen carbonate solution was added to the reaction solution and the solution was stirred for a while. Subsequently, ethyl acetate and water were added to the reaction solution, and phase separation was carried out. The separated organic layer was dried over anhydrous magnesium sulfate and filtered. The filtrate was concentrated under reduced pressure and dried, and thus obtained residue was grinded to give 7.5 g (yield 95%) of the title compound as a powder form.
 $^1\text{H-NMR}$ (DMSO-d_6 , ppm) δ 2.26 (6H, s), 7.46 (2H, s), 7.88 (1H, t, $J = 7.8$ Hz), 8.43-8.48 (2H, m), 8.73 (1H, s), 8.81 (1H, s), 10.27 (1H, s).

Example 17-3

Preparation of N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-aminobenzamide (Compound No. I-204)

[0230] A solution prepared by adding 8.0 g of N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-aminobenzamide and 0.8 g of 10% palladium-carbon to 50 ml of methanol, was stirred at room temperature under a hydrogen atmosphere. After the loss of the starting material was confirmed through TLC, the reaction solution was filtered, and thus obtained filtrate was concentrated under reduced pressure. Thus obtained residue was purified by silica gel chromatography (eluent : hexane:ethyl acetate = 3:1) to give 6.3 g (yield 85%) of the title compound as a powder form.
 $^1\text{H-NMR}$ (DMSO-d_6 , ppm) δ 2.35 (6H, s), 4.31 (2H, broad), 6.84-6.87 (1H, m), 7.21-7.25 (1H, m), 7.29-7.31 (2H, m), 7.47-7.49 (2H, m), 7.83 (1H, s), 8.94 (1H, s).

Example 17-4

Preparation of N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-(benzoylamino)benzamide (Compound No. I-351)

[0231] At room temperature, 6.0 g of N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-aminobenzamide, 2.5 g of benzoyl chloride and 1.8 g of pyridine were introduced to 50 ml of tetrahydrofuran. After the loss of the starting material was confirmed through TLC, the reaction solution was filtered, and thus obtained filtrate was concentrated under reduced pressure. Thus obtained residue was purified by silica gel chromatography (eluent : hexane:ethyl acetate = 3:1) to give 6.3 g (yield 85%) of the title compound as a powder form.
 $^1\text{H-NMR}$ (DMSO-d_6 , ppm) δ 2.26 (6H, s), 7.44 (2H, s), 7.51-7.63 (4H, m), 7.74 (1H, d, $J = 7.8$ Hz), 7.98-8.07 (3H, m), 8.35 (1H, s), 8.71 (1H, s), 9.90 (1H, s), 10.47 (1H, s).
[0232] Using 2-fluorobenzoyl chloride instead of benzoyl chloride, N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-[(2-fluorobenzoyl)amino]benzamide (Compound No. I-358) was prepared according to Example 17-4.
 $^1\text{H-NMR}$ (DMSO-d_6 , ppm) δ 2.34 (6H, s), 7.21 (1H, dd, $J=8.2,11.2$ Hz), 7.32 (1H, t, $J = 7.8$ Hz), 7.49-7.56 (4H, m), 7.78

(1H, d, J = 7.8 Hz), 8.04-8.08 (2H, m), 8.23 (1H, s), 8.71 (1H, s), 9.08 (1H, d, J = 11.2 Hz).

Example 17-5

5 Preparation of N-[2,6-dimethyl-4-{1-chloro-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-(benzoylamino)benzamide (Compound No. 1-419)

[0233] At room temperature, 8.0 g of N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-(benzoylamino)benzamide and 1.0 g of pyridine were introduced to 40 ml of thionyl chloride. Then, the temperature was elevated, and the mixture was stirred under reflux conditions. After the loss of the starting material was confirmed through TLC, the reaction solution was cooled and was concentrated under reduced pressure. Thus obtained residue was purified by silica gel chromatography (eluent : hexane:ethyl acetate = 3:1) to give 6.2 g (yield 75%) of the title compound as a powder form.

10 15 ¹H-NMR (DMSO-d₆, ppm) δ 2.34 (6H, s), 7.49-7.63 (6H, m), 7.76 (1H, d, J = 7.8 Hz), 7.99-8.08 (3H, m), 8.37 (1H, s), 9.99 (1H, s), 10.48 (1H, s).

Example 17-6

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(benzoylamino)benzamide (Compound No. 10)

[0234] At room temperature, 300 mg of N-[2,6-dimethyl-4-{1-chloro-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-(benzoylamino)benzamide and 165 mg of potassium fluoride were introduced to 20 ml of N,N-dimethyl formamide. Then, the temperature was elevated to 120°C, and the mixture was stirred for 4 hours. The reaction solution was cooled to room temperature, ethyl acetate and water were added, and the organic layer was separated. The organic layer was dried over anhydrous magnesium sulfate and filtered, and the filtrate was concentrated under reduced pressure. Thus obtained residue was washed by addition of diisopropyl ether. The suspension was filtered, and thus obtained filtered residue was dried under reduced pressure at room temperature to give 250 mg (yield 85%) of the title compound as a powder form.

[0235] The characterization is described in Example 1-3.

Example 17-7

N-[2,6-dimethyl-4-{1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl}phenyl] 3-(benzoylamino)benzamide (Compound No. I-351)

[0236] At room temperature, 2.0 g of 2,6-dimethyl-4-[1-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]aniline, 2.7 g of 3-(benzoylamino)benzoyl chloride and 1.2 g of pyridine were introduced to 50 ml of tetrahydrofuran, and the mixture was stirred at room temperature. After the loss of the starting material was confirmed through TLC, a saturated aqueous sodium hydrogen carbonate solution was added to the reaction solution and the solution was stirred for a while. Subsequently, ethyl acetate and water were added to the reaction solution, and phase separation was carried out. The separated organic layer was dried over anhydrous magnesium sulfate and filtered. The filtrate was concentrated under reduced pressure and dried, and thus obtained residue was grinded to give 3.4 g (yield 95%) of the title compound as a powder form.

[0237] The characterization is described in Example 17-4.

Example 17-8

Preparation of N-(2,6-dimethyl-4-heptafluoroisopropyl)phenyl 3-(benzoylamino)benzamide (Compound No. 10)

[0238] At room temperature, 300 mg of N-[2,6-dimethyl-4-11-hydroxy-2,2,2-trifluoro-1-(trifluoromethyl)ethyl] 3-(benzoylamino)benzamide was introduced to 20 ml of methylene chloride. Then, 480 mg of 2,2-difluoro-1,3-dimethyl-2-imidazolidinone was added dropwise, and the mixture was stirred at room temperature for 8 hours. Water was added to the reaction solution, and the organic layer was separated. The organic layer was dried over anhydrous magnesium sulfate and filtered, and thus obtained filtrate was concentrated under reduced pressure and dried. Thus obtained solid was grinded to give 180 mg (yield 60%) of the title compound as a powder form.

[0239] The characterization is described in Example 1-3.

Example 18-1

Preparation of 4-methyl-5-nitro-2-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridine

5 [0240] After 1.33 g of 60% sodium hydride was introduced to 15 ml of tetrahydrofuran and cooled to 5°C, 5.84 g of 1,1,1,3,3-hexafluoro-2-propanol was added dropwise. The mixture was stirred at 5°C for 30 minutes, and then 3.0 g of 2-chloro-4-methyl-5-nitropyridine dissolved in 10 ml of tetrahydrofuran was added dropwise, this being stirred at room temperature for 3 hours. After being left at room temperature for 3 days, ethyl acetate and water were added thereto, and the organic layer was separated and washed with saturated brine. The organic layer was dried over anhydrous magnesium sulfate, and the solvent was distilled off under reduced pressure. Thus obtained residue was purified by silica gel column chromatography (eluent : hexane: ethyl acetate = 10:1) to give 4.5 g (yield 80%) of the title compound as a yellow oil.

¹H-NMR (CDCl₃, ppm) δ 2.69 (3H, s), 6.54 (1H, septet, J = 6.8 Hz), 6.95 (1H, s), 8.90 (1H, s).

15 Example 18-2

Preparation of 5-amino-4-methyl-2-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridine

20 [0241] The title compound was prepared using 4-methyl-5-nitro-2-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridine according to the conditions described in Example 1-2.

¹H-NMR (CDCl₃, ppm) δ 2.04 (3H, s), 3.49 (2H, broad-s), 6.40 (1H, septet, J = 6.3 Hz), 6.69 (1H, s), 7.54 (1H, s).

Example 18-3

25 Preparation of 3-amino-2-chloro-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridine

30 [0242] 1.0 g of 5-amino-4-methyl-2-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridine was introduced to 10 ml of N,N-dimethylformamide, and 0.56 g of N-chlorosuccinimide was added at room temperature. The temperature was elevated to 60°C, and the mixture was stirred for 1 hour and poured into water. The mixture was extracted with ethyl acetate and dried over anhydrous magnesium sulfate. The solvent was distilled off under reduced pressure, and thus obtained residue was purified by silica gel column chromatography (eluent : hexane:ethyl acetate = 10:1) to give 0.50 g (yield 44%) of the title compound as a brown oil.

¹H-NMR (CDCl₃, ppm) δ 2.23 (3H, s), 3.82 (2H, broad-s), 6.24 (1H, septet, J = 6.3 Hz), 6.67 (1H, s).

35 Example 18-4

Preparation of N-[2-chloro-4-methyl-6-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridin-3-yl] 3-(benzoylamino)benzamide (Compound No. 464)

40 [0243] The title compound was prepared using 5-amino-4-methyl-2-(2,2,2-trifluoro-1-trifluoromethylethoxy)pyridine according to the conditions described in Example 1.

¹H-NMR (CDCl₃, ppm) δ 2.38 (3H, s), 6.34 (1H, septet, J = 6.3 Hz), 6.87 (1H, s), 7.50-7.63 (5H, m), 7.72 (1H, d, J = 7.8 Hz), 7.88-7.90 (3H, m), 7.99 (1H, broad-s), 8.31 (1H, broad-s).

45 [0244] Preparation examples containing the compound represented by Formula (1) of the invention as an active ingredient are presented in the following, but the invention is not intended to be limited thereto. Additionally, in the formulations, the unit expressed in parts mean parts by weight.

[Preparation Example 1]

50 [0245] An emulsion was obtained by homogeneously mixing, with stirring, 20 parts of the compound represented by Formula (1) of the invention, 10 parts of Sol Pol 355S (Toho Chemical Industry Co., LTD, a surfactant) and 70 parts of xylene.

[Preparation Example 2]

55 [0246] A water-dispersible powder was obtained by homogeneously mixing, with stirring, 10 parts of the compound represented by Formula (1) of the invention, 2 parts of sodium alkylphthalenesulfonate, 1 part of sodium ligninsulfonate, 5 parts of white carbon and 82 parts of diatomite.

[Preparation Example 3]

[0247] A dust formulation was obtained by homogeneously mixing, with grinding, a homogeneous mixture of 0.3 part of the compound represented by Formula (1) of the invention and 0.3 part of white carbon with 99.2 parts of clay and 0.2 part of Driless A (Sankyo Co.,Ltd).

[Preparation Example 4]

[0248] A granule was obtained by homogeneously mixing, with grinding, 2 parts of the compound represented by Formula (1) of the invention, 2 parts of white carbon, 2 parts of sodium ligninsulfonate and 94 parts of bentonite, kneading with water, and by granulating and drying.

[Preparation Example 5]

[0249] A flowable formulation was prepared by sufficiently stirring and mixing 20 parts of the compound represented by Formula (1) of the invention and 5 parts of a 20% aqueous solution of polyvinyl alcohol, adding 75 parts of a 0.8% aqueous solution of xanthan gum, and stirring and mixing them again.

[0250] Furthermore, in order to confirm the excellent insecticidal activity of the compound represented by Formula (1) of the invention, Experimental Examples will be presented below, which are not intended to limit the invention anyway.

[Experimental Example 1]

Insecticidal testing against common cutworm (*Spodoptera litura*)

[0251] Cabbage leaves were immersed in a liquid comprising the testing compound to a predetermined concentration for 30 seconds and air-dried. They were placed in a 7-cm polyethylene cup, and the second-stage larvae of common cutworm were left therein. The cup was placed in a constant-temperature room at 25°C, and the survival rate was investigated after 3 days. The test was carried out with two groups of 5 larvae per group. As a result, Compound No. (to be described later)

2,3,4,5,6,7,8,9,10,11,12,13,14,16,17,18,19,20,21,22,23,25,26,27, 28,29,30,31,32,33,37,39,42,43,46,48,56,57,58,59, 60,61,62,66,68, 69,70,71,73,74,75,81,82,83,84,85,86,87,89,92,96,99,100,101,105, 106,109,114,117,122,124,125, 126,127,129,130,132,136,140,150,160, 163,164,165,166,168,169,170,171,172,173,174,175,176,177,178,179, 180, 181,182,183,184,185,186,187,188,189,190,191,192,193,194,195, 196,197,198,199,200,201,202,204,207,208,210, 212,256,257,258,259, 260,261,262,263,266,276,284,288,309,310,327,328,329,330,331,332, 333,334,335,338,369, 375,376,377,378,379,380,383,414,460,461,462, 463,464,465,466,467,601,602,603,604,605,606,607,609,610,611, 612, 616,618,619,624,628,629,630,631,633,634,638,639,649,650,651,652, 653,654,655,656,657,658,661,665,668, 670,676,679,682,686,699,708, 711,719,722,791,1001,1016,1043,1089,1091,1097,1100,1125,1126, 1206,1207,1208, 1209,1210,1211,1212,1213,1214,1216,1217,1218, 1219,1220,1229,1235,1236,1237,1238,1245,1246,1247,1255, 1256, 1257,1258,1259,1260,1261,1262,1263,1264,1265,1266,1267,1274, 1293,1294,1463,1464,1464,1465,1478,1479, 1480,1481,1482,1483,1484, 1485,1486,1487,1607,1617,1645,1697,2001,2004,2034,2035,2036, 2037,2082,2085, 2093,2116,2117,2164,2168,2201,2202,2203 exhibited an pesticidal rate of 70% or more at a concentration of 100 ppm.

[Experimental Example 2]

Insecticidal testing against diamondback moth (*Plutella xylostella*)

[0252] Cabbage leaves were immersed in a liquid comprising the testing compound to a predetermined concentration for 30 seconds and air-dried. They were placed in a 7-cm polyethylene cup, and the second-stage larvae of diamondback moth were left therein. The cup was placed in a constant-temperature room at 25°C, and the survival rate was investigated after 3 days. The test was carried out with two groups of 5 larvae per group. As a result, Compound No. (to be described later)

2,3,4,5,6,7,8,9,10,11,12,13,17,18,19,20,21,22,23,25,26,27,29,30, 31,32,33,37,39,43,47,56,58,59,60,61,62,66,68,69, 70,82,83,84,85, 86,87,89,92,100,101,105,106,109,114,118,122,124,127,130,132,135, 147, 150, 154, 160, 163, 164, 165, 166, 168, 169, 170, 171, 172, 173, 174, 175, 176,177,178,179,180,181,182,183,184,185,186,194,196,197,198,199, 200,201,202,203,204,206,207,208,209,210,212,256,258,259,260,261, 262,263,266,284,309,310,314,318,327,328, 329,330,331,332,333,334, 335,338,369,375,376,377,378,379,383,414,460,461,462,463,464,465, 466,467,601,602, 603,604,605,606,607,609,610,611,612,616,618,619, 620,624,628,629,630,631,633,634,638,639,650,651,652,653,

654,655, 656, 657, 665, 668, 670, 676, 679, 682, 686, 699, 708, 711, 719, 722, 791, 1001, 1016, 1043, 1089, 1091, 1097, 1100, 1125, 1126, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1229, 1235, 1236, 1237, 1238, 1245, 1246, 1247, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1274, 1293, 1294, 1463, 1464, 1465, 1478, 1479, 1480, 1481, 1482, 1484, 1485, 1486, 1487, 1607, 1617, 1645, 1697, 2001, 2034, 2037, 2082, 2085, 2093, 2116, 2117, 2164, 2168, 2201, 2202, 2203 exhibited an pesticidal rate of 70% or more at a concentration of 100 ppm.

[Experimental Example 3]

Insecticidal testing against small brown planthopper (*Laodelphax striatellus*)

[0253] An additional test was carried out with 10 small brown planthoppers by preparing an acetone solution of the testing compound diluted to a predetermined concentration, and spraying the solution on rice paddies and air drying them. The medicament was all used as received. The paddies were placed in a constant-temperature room at 25°C, and the survival rate was investigated after 6 days. The test was carried out by means of one group of 10 pests. As a result, Compound No. (to be described later) 7, 8, 17, 25, 31, 62, 101, 105, 106, 122, 130, 164, 165, 166, 169, 170, 171, 172, 173, 174, 175, 178, 179, 180, 181, 182, 183, 184, 185, 197, 199, 201, 202, 206, 207, 208, 210, 369, 601, 604, 607, 609, 610, 611, 612, 618, 619, 620, 624, 628, 630, 633, 639, 650, 651, 652, 654, 655, 657, 665, 668, 686, 1043, 1089, 1091, 1097, 1100, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1216, 1217, 1218, 1219, 1220, 1229, 1235, 1236, 1237, 1238, 1245, 1246, 1247, 1255, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1293, 1463, 1464, 1465, 1487, 1607, 1645, 1697, 2034, 2037, 2082, 2085, 2093, 2116, 2117, 2203 exhibited an pesticidal rate of 70% or more at a concentration of 1000 ppm.

[Comparative Experimental Example 1]

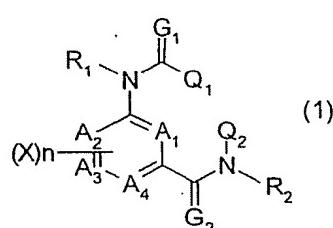
[0254] Pesticidal testing using

N-(4-heptafluoroisopropyl-2-methyl)phenyl
3-(2-iodobenzoylamino)benzamide (Compound A) and
N-(2,6-dimethyl-4-trifluoromethyl)phenyl
3-(benzoylamino)benzamide (Compound B)

[0255] Additional tests were carried out using said Compound A and Compound B following the procedures of Experimental Examples 1 and 2, but insecticidal activity was not observed under the same conditions.

Claims

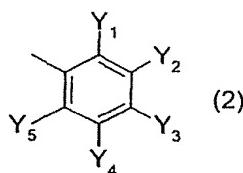
1. A compound represented by Formula (1):



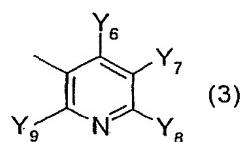
wherein A₁, A₂, A₃ and A₄ each represent a carbon atom, a nitrogen atom or an oxidized nitrogen atom; R₁ and R₂ each represent a hydrogen atom, an optionally substituted alkyl group or an optionally substituted C1-C4 alkylcarbonyl group; G₁ and G₂ each represent an oxygen atom or a sulfur atom; X, which may be identical or different each other, represents a hydrogen atom, a halogen atom, a C1-C3 alkyl group or a trifluoromethyl group; n is an integer of 0 to 4; Q₁ represents an optionally substituted phenyl group, an optionally substituted naphthyl group or an optionally substituted heterocyclic group; and Q₂ represents a phenyl group or heterocyclic group having one or more substituents, at least one of the substituent

being any of a C1-C4 haloalkoxy group, a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group and a C1-C6 perfluoroalkylsulfonyl group.

2. The compound according to claim 1 represented by Formula (1), wherein
 5 R₁ and R₂ are each a hydrogen atom or a C1-C4 alkyl group;
 X_s, which may be identical or different each other, are a hydrogen atom, a halogen atom or a trifluoromethyl group;
 10 Q₁ is a phenyl group, or a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6
 15 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group, and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazyl group, a pyrazyl group, a furyl group, a thienyl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group), or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4
 20 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group, and a phenyl group;
 25 Q₂ is represented by Formula (2):

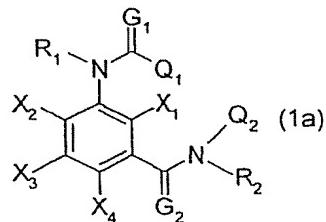


35 (wherein Y₁ and Y₅, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₃ represents a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₂ and Y₄ each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group);
 40 or by Formula (3):

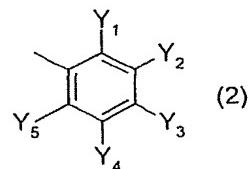


50 (wherein Y₆ and Y₉, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₈ represents a C1-C4 haloalkoxy group, a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₇ represents a hydrogen atom, a halogen atom or a C1-C4 alkyl group).

3. The compound according to claim 2, represented by Formula (1a), which is Formula (1) with A_1 , A_2 , A_3 and A_4 being all carbon atoms:

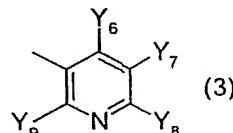


15 wherein R_1 , R_2 , G_1 , G_2 and Q_1 have the same meanings as those described in claim 2, and Q_2 is represented either by Formula (2):



25 (wherein Y_1 and Y_5 , which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y_3 represents a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y_2 and Y_4 each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group);

30 or by Formula (3):

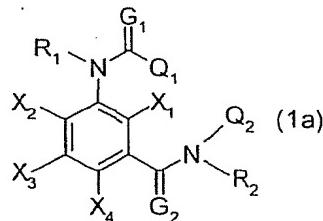


40 (wherein Y_6 and Y_9 , which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y_8 represents a C1-C4 haloalkoxy group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y_7 represents a hydrogen atom, a halogen atom or a C1-C4 alkyl group),

45 wherein in Formula (1a), X_1 and X_2 each represent a hydrogen atom or a fluorine atom; and X_3 and X_4 represent a hydrogen atom.

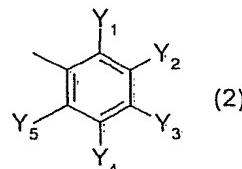
- 50 4. The compound according to claim 1 or 2, represented by Formula (1a), which is Formula (1) with A_1 , A_2 , A_3 and A_4 being all carbon atoms:

55



10

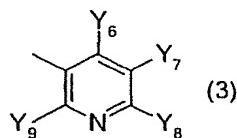
wherein Q₂ is represented either by Formula (2):



20

25 (wherein Y₁ and Y₅, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₃ represents a C2-C6 perfluoroalkyl group; and Y₂ and Y₄ each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group); or by Formula (3):

30



35

40 (wherein Y₆ and Y₉, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₈ represents a C2-C6 perfluoroalkyl group; and Y₇ represents a hydrogen atom, a halogen atom or a C1-C4 alkyl group);

45 X₁ and X₂ each represent a hydrogen atom or a fluorine atom;

X₃ and X₄ represent a hydrogen atom;

one of R₁ and R₂ is a hydrogen atom, the other is a C1-C4 alkyl group, or both of them are a C1-C4 alkyl group;

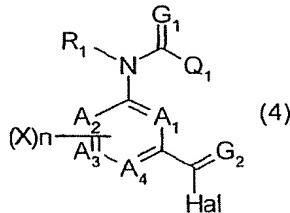
G₁ and G₂ each represent an oxygen atom or a sulfur atom; and

50 Q₁ represents a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazyl group, a pyrazyl group, a furyl group, a thienyl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group); or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-

C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group.

5. The compound according to claim 1 or 2, represented by Formula (1), wherein A₁ is a nitrogen atom or an oxidized
10 nitrogen atom; A₂, A₃ and A₄ are a carbon atom; R₁ and R₂ are each a hydrogen or a C1-C4 alkyl group; X is a
hydrogen atom or a fluorine atom; n is 0 or 1; and G₁ and G₂ are an oxygen atom.
6. The compound according to any one of claims 3 to 5, wherein Q₁ is a phenyl group; a substituted phenyl group
15 having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl
group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-
C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3
haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3
haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group,
20 a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4
alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a pyridyl group;
25 or a substituted pyridyl group having one or more substituents, which may be identical or different, selected from a
halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group,
a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-
C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkyl-
sulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-
C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkyl-
carbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl
group.

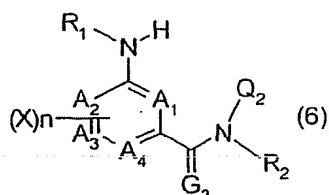
7. A compound represented by Formula (4):



40 wherein A₁, A₂, A₃ and A₄ each represent a carbon atom, a nitrogen atom or an oxidized nitrogen atom;
R₁ represents a hydrogen atom, a C1-C4 alkyl group or a C1-C4 alkylcarbonyl group;
G₁ and G₂ each represent an oxygen atom or a sulfur atom;
X, which may be identical or different each other, represents a hydrogen atom, a halogen atom, an optionally
45 substituted C1-C3 alkyl group or a trifluoromethyl group;
n represents an integer of 0 to 4;
Q₁ represents a phenyl group; a substituted phenyl group having one or more substituents, which may be identical
50 or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group,
a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6
halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkyl-
thio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkyl-
sulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl
55 group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino
group and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-
N-oxide group, a pyrimidinyl group, a pyridazyl group, a pyrazyl group, a furyl group, a thienyl group, an oxazolyl
group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a
triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group); or a substituted heterocyclic group (which
means the same as those described above) having one or more substituents, which may be identical or different,

selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group or a phenyl group; and
 Hal represents a chlorine atom or a bromine atom.

10 8. A compound represented by Formula (6):



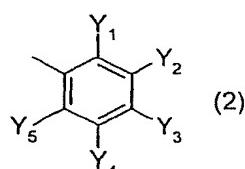
wherein A₁, A₂, A₃ and A₄ each represented by a carbon atom, a nitrogen atom or an oxidized nitrogen atom; R₁ and R₂ each represent a hydrogen atom, a C1-C4 alkyl group or a C1-C4 alkylcarbonyl group;

G₂ represents an oxygen atom or a sulfur atom;

25 X, which may be identical or different, represents a hydrogen atom, a halogen atom, an optionally substituted C1-C3 alkyl group or a trifluoromethyl group;

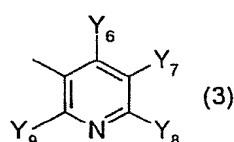
n represents an integer of 0 to 4;

Q₂ is represented either by Formula (2):



40 (wherein Y₁ and Y₅, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₃ represents a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₂ and Y₄ each represent a hydrogen atom, a halogen atom or a C1-C4 alkyl group);

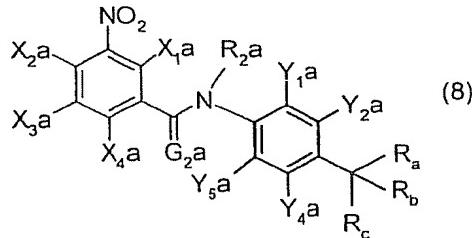
45 or by Formula (3):



55 (wherein Y₆ and Y₉, which may be identical or different, each represent a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group or a cyano group; Y₈ represents a C1-C4 haloalkoxy group, a C2-C6 perfluoroalkyl group, a C1-C6 perfluoroalkylthio group, a C1-C6 perfluoroalkylsulfinyl group or a C1-C6 perfluoroalkylsulfonyl group; and Y₇ represents a hydrogen atom, a halogen

atom or a C1-C4 alkyl group).

9. A compound represented by Formula (8):



wherein X₁a, X₂a, X₃a and X₄a each represent a hydrogen atom, a C1-C3 alkyl group, a trifluoromethyl group, a hydroxyl group, an amino group or a halogen atom;

R_a and R_b each represent a fluorine atom or a C1-C4 perfluoroalkyl group;

R_c represents a hydroxyl group, a group -O-R_d (wherein R_d represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group), a chlorine atom, a bromine atom or an iodine atom;

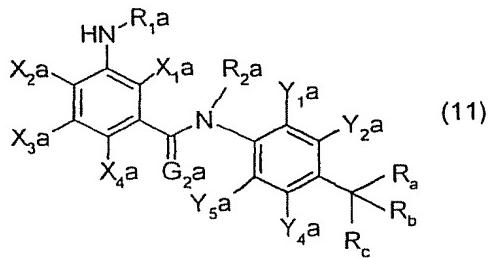
R₂a represents a hydrogen atom, a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group;

Y₁a and Y₅a each represent a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C3 alkylsulfinyl group or a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a cyano group, a hydroxyl group or a halogen atom;

Y₂a and Y₄a each represent a hydrogen atom, a C1-C4 alkyl group or a halogen atom; and

G₂a represents an oxygen atom or a sulfur atom.

30 10. A compound represented by Formula (11):



45 wherein X₁a, X₂a, X₃a and X₄a each represent a hydrogen atom, a C1-C3 alkyl group, a trifluoromethyl group, a hydroxyl group, an amino group or a halogen atom;

R_a and R_b each represent a fluorine atom or a C1-C4 perfluoroalkyl group;

R_c represents a hydroxyl group, a group -O-R_d (wherein R_d represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group), a chlorine atom, a bromine atom or an iodine atom;

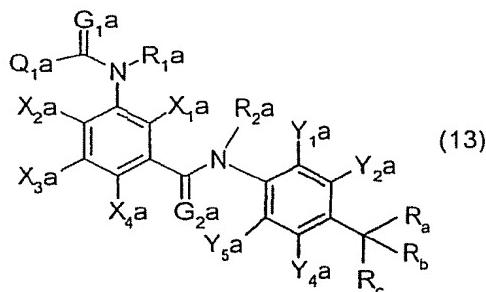
R₁a and R₂a each represent a hydrogen atom, a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group;

Y₁a and Y₅a each represent a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a cyano group, a hydroxyl group or a halogen atom;

Y₂a and Y₄a each represent a hydrogen atom, a C1-C4 alkyl group or a halogen atom; and

G₂a represents an oxygen atom or a sulfur atom.

11. A compound represented by Formula (13):



wherein X_{1a} , X_{2a} , X_{3a} and X_{4a} each represent a hydrogen atom, a C1-C3 alkyl group, a trifluoromethyl group, a hydroxyl group, an amino group or a halogen atom;

R_a and R_b each represent a fluorine atom or a C1-C4 perfluoroalkyl group;

R_c represents a hydroxyl group, a group $-O-R_d$ (wherein R_d represents a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, an arylsulfonyl group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group), a chlorine atom, a bromine atom or an iodine atom;

R_{1a} and R_{2a} each represent a hydrogen atom, a C1-C3 alkyl group, a C1-C3 haloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C4 alkylcarbonyl group or a C1-C4 haloalkylcarbonyl group;

Y_{1a} and Y_{5a} each represent a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C1-C4 alkylthio group, a C1-C4 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a cyano group, a hydroxyl group or a halogen atom;

Y_{2a} and Y_{4a} each represent a hydrogen atom, a C1-C4 alkyl group or a halogen atom;

G_{1a} and G_{2a} each represent an oxygen atom or a sulfur atom;

Q_{1a} represents a phenyl group; a substituted phenyl group having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group; a heterocyclic group (the heterocyclic group herein represents a pyridyl group, a pyridin-N-oxide group, a pyrimidinyl group, a pyridazyl group, a pyrazyl group, a furyl group, a thienyl group, an oxazolyl group, an isoxazolyl group, an oxadiazolyl group, a thiazolyl group, an isothiazolyl group, an imidazolyl group, a triazolyl group, a pyrrolyl group, a pyrazolyl group or a tetrazolyl group); or a substituted heterocyclic group (which means the same as those described above) having one or more substituents, which may be identical or different, selected from a halogen atom, a C1-C4 alkyl group, a C1-C4 haloalkyl group, a C2-C4 alkenyl group, a C2-C4 haloalkenyl group, a C2-C4 alkynyl group, a C2-C4 haloalkynyl group, a C3-C6 cycloalkyl group, a C3-C6 halocycloalkyl group, a C1-C3 alkoxy group, a C1-C3 haloalkoxy group, a C1-C3 alkylthio group, a C1-C3 haloalkylthio group, a C1-C3 alkylsulfinyl group, a C1-C3 haloalkylsulfinyl group, a C1-C3 alkylsulfonyl group, a C1-C3 haloalkylsulfonyl group, a C1-C4 alkylamino group, a di-C1-C4-alkylamino group, a cyano group, a nitro group, a hydroxyl group, a C1-C4 alkylcarbonyl group, a C1-C4 alkylcarbonyloxy group, a C1-C4 alkoxy carbonyl group, an acetyl amino group and a phenyl group.

12. An insecticide containing the compound according to any one of claims 1 to 6 as the active ingredient.

- 50
13. A method of using pesticide in treating crops for cultivation or the soil to be treated with an effective amount of the compound according to any one of claims 1 to 6, in order to protect the crops from harmful organisms.
- 55
14. A mixture in which the compound according to any one of claims 1 to 6 is combined with at least one other insecticide and/or fungicide.

INTERNATIONAL SEARCH REPORT		International application No. PCT/JP2004/019770						
<p>A. CLASSIFICATION OF SUBJECT MATTER</p> <p>Int.C1⁷ C07C237/42, 317/40, 323/42, 327/48, C07D207/16, 213/81, 213/82, 231/12, 241/24, 261/18, 307/68, A01N37/22, 43/08, 43/10, 43/16, 43/36, 43/40, 43/42, 43/54, 43/56, 43/60, 43/78, 43/80</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>								
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols)</p> <p>Int.C1⁷ C07C237/42, 317/40, 323/42, 327/48, C07D207/16, 213/81, 213/82, 231/12, 241/24, 261/18, 307/68, A01N37/22, 43/08, 43/10, 43/16, 43/36, 43/40, 43/42, 43/54, 43/56, 43/60, 43/78, 43/80</p>								
<p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p>								
<p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p> <p>CA (STN), REGISTRY (STN)</p>								
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>WO 03/011028 A1 (Nissan Chemical Industries, Ltd.), 13 February, 2003 (13.02.03), Full text & JP 2004-51614 A</td> <td>1-6, 12-14</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	A	WO 03/011028 A1 (Nissan Chemical Industries, Ltd.), 13 February, 2003 (13.02.03), Full text & JP 2004-51614 A	1-6, 12-14
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.						
A	WO 03/011028 A1 (Nissan Chemical Industries, Ltd.), 13 February, 2003 (13.02.03), Full text & JP 2004-51614 A	1-6, 12-14						
<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.</p>								
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"B" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>								
<p>Date of the actual completion of the international search 15 March, 2005 (15.03.05)</p>		<p>Date of mailing of the international search report 05 April, 2005 (05.04.05)</p>						
<p>Name and mailing address of the ISA/ Japanese Patent Office</p>		<p>Authorized officer</p>						
<p>Facsimile No.</p>		<p>Telephone No.</p>						

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/019770

Continuation of Box No.III of continuation of first sheet(2)

"a compound having CO bonded to a 6-membered aromatic ring at the 1-position and N bonded thereto at the 3-position" is not a special technical feature either.

Therefore, there is no technical relationship among claims 1-14 involving special technical features, so that this application does not satisfy the requirement of unity of invention.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2004/019770

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

"Compounds which have phenylaminocarbonyl at the 1-position of benzene ring and benzoylamino at the 3-position thereof and exhibit insecticidal activity" are publicly known (WO 03/011028 A1).

Thus, it cannot be said that the technical feature common to claims 1-6 and 12-14, i.e., "a compound which has a -CO-N-ring group at the 1-position of a 6-membered aromatic ring and a -N-CO-ring group at the 3-position thereof and exhibits insecticidal activity" is a special technical feature (a technical feature that defines a contribution made over the prior art).

Further, the technical feature common to claim 1 and claims 7-11, i.e., (continued to extra sheet)

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Part of claims 1-6, 12-14 (compounds wherein A₁ is CH)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 200055120 A [0002]
- US 6548514 B [0002]
- WO 20007980 A [0003]
- US 2002032238 A [0004]

Non-patent literature cited in the description

- *J. Am. Chem. Soc.*, 1967, 5012 [0075]
- *Synthesis*, 1993, 463 [0089]
- *Synthesis*, 1984, 829 [0089]
- *J. Org. Chem.*, 1958, 280 [0092]
- *J. Fluorine Chem.*, 1994, 207 [0094]
- *Synth. Commun.*, 1989, 1261 [0097]
- *Tetrahedron Lett.*, 1994, 4955 [0100]
- *Tetrahedron Lett.*, 2000, 6237 [0103]